

ought to be speedily reported to a plurality of official men. This is necessary for ascertaining, to the reasonable satisfaction of all parties, whether the insanity is evident; and cases will sometimes occur that bear a very questionable aspect, and require frequent visits, and the minute observation of a sagacious and experienced person, before that point can be determined. On this account facilities should be afforded for obtaining information, from respectable neighbours, of all the previous circumstances that are likely to throw light on such cases. Wherever motives to unjust confinement might be supposed possible, the case should be investigated with particular care. Persons of property, being most liable to cruel imposition in this particular, should be provided with the best legal protection.

2. Another object is, to provide for the confinement of all those persons whose mental condition renders that measure necessary. On this point, delicacy towards persons who show symptoms of incipient derangement, and towards their friends, requires that much should be left to private discretion. There is no doubt, however, that wandering lunatics ought to be attended to; that the mischievous should be placed under restraint; and that, for obvious reasons, no females in this unfortunate situation should be allowed to go at large.

3. A third object is, to secure the best treatment to the insane who are placed in confinement. Even those who are really insane, especially persons of superior rank, are liable to be treated with studied carelessness from mercenary motives operating upon those in whose charge they are placed, and from the base antipathies or the rapacity of relations. Carelessness, mean resentment, and a brutal disposition to abridge, as much as possible, the business of a receptacle for the insane, have too often been productive of inhuman usage towards all descriptions of insane persons. These evils can only be prevented by an assiduous system of thorough and frequent inspection. Much advantage has arisen from some recent enactments providing for the inspection of such houses. But this inspection, in order to produce the desired effect, ought to be at least weekly, and the inspectors ought to have, without giving warning, immediate access to all parts of such establishments.

The arrangements required in lunatic hospitals have recently become a subject of attentive study, and it is hoped will be soon perfectly understood. The comfort of the situation, the security of the patients, and the prevention of mischief, are requisites in them all. More particular care is required in those intended for the reception of recent cases, which admit of some hopes of recovery. An hospital for the curable insane requires, besides the circumstances now mentioned, much more assiduous medical attendance, greater address on the part of the keeper, and various arrangements for separating the different classes of patients, for presenting to their feelings and thoughts only those objects which have an unexceptional tendency, and providing them with salutary employment. Perhaps such institutions ought not to be committed exclusively to the care of one medical person. Or, if this is thought necessary for preventing jarrings, provision should be made for extended communications on the progress of each case, and frequent consultations on the minutiae of the treatment. Without this, the due interest in the object is apt to decline, and the practice is in danger of degenerating into an indolent routine.

Insanity is treated in the works of Hippocrates, Celsus, Aretæus, Van Swieten, Cullen, and the greater part of ancient and modern systematic writers on Medicine. See more particularly Arnold on *Insanity*. Battie's *Treatise on Madness*. Haslam on *Madness and Melancholy*. *Illustrations of Madness*, by ditto. Rush on *Mental Derangement*. Cox's *Observations on Insanity*. Crichton on *Mental Derangement*. Perfect's *Select Cases of Insanity*. Mons. Pinel sur *L'Aliénation Mentale*. Hallaran on *Insanity*. G. N. Hill on *the Prevention and Cure of Insanity*. Spurzheim on *Insanity*. The article *Folie* in the *Dictionnaire des Sciences Médicales*. Dr. Powell's paper on the *Transactions of the London College of Physicians*. Also the Reports of the Committee of the House of Commons for considering the regulation of mad-houses; and the pamphlets of Stark, Tuke, and others, on *Lunatic Asylums*. The *Annual Reports of the Glasgow Lunatic Asylum*, being generally interesting and instructive, may be perused with advantage. (H. D.)

INSECTA.

For the external anatomical structure, &c. see ZOOLOGY.

ORDER DIPTERA.

The characters of this order, and of the tribes of which it is composed, were given under the article ENTOMOLOGY.

SECT. I. PROBOSCIDEA.

TRIBE I. TIPULARIDES.

A. *Antennæ filiform or setaceous, longer than the head.*

Stirps 1. Ocelli none; antennæ very hairy; eyes large; rostrum tubular, long.

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GENUS DCLXXXI. CULEX, of authors.

Sp. 1. *Piptiens* of authors. The common gnat.

Stirps 2. Ocelli none; antennæ very hairy; eyes large; rostrum very short, terminated by two lips. Two anterior legs at a distance from the others.

GENUS DCLXXXII. CORETHRA, Meig. Illig. Latr.

Antennæ fourteen-jointed; the basilar joints conic-ovoid; of the male with fasciculi of hairs; with simple hairs on the females; the two last joints attenuated, elongated.

Sp. 1. *Culiciformis*. Meig.

GENUS DCLXXXIII. TANYPUS, Meig. Illig. Latr.

Antennæ fourteen jointed, very plumose, moniliform,

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their extremities filiform: of the male, almost entirely moniliform, their last joint larger and ovoid in the female.

Sp. 1. Cinctus. Meig.

GENUS DCLXXXIV. CHIRONOMUS, Meig. Latr. Illig. Fabr.

Antennæ twelve jointed, very plumose, moniliform, with filiform extremities in the male; seven jointed, the last joint elongate, cylindric in the female.

Sp. 1. Plumosus. Meig.

Inhabits Europe.

Stirps 3. Ocelli, none, antennæ very hairy, eyes large, rostrum very short, legs at an equal distance from each other.

GENUS DCLXXXV. CULICOIDES, Latr.

Wings deflexed; rostrum conic, larger than the head; antennæ fourteen jointed, downy.

Sp. 1. Punctata. Latr.

Inhabits France and England.

GENUS DCLXXXVI. PSYCHODA, Latr. Fabr. TINEARIA, Schell. TRICHOPTERA, Meig.

Wings deflexed, rostrum shorter than the head, antennæ with fifteen or sixteen joints, of a globular form, covered with bundles of hairs.

Sp. 1. Phalænoides. Latr.

Inhabits Europe.

GENUS DCLXXXVII. CERATOPOGON, Meig. Illig. Latr. Pauz.

Wings incumbent; lower joints of the antennæ ovoid or subglobular, the upper ones longer and cylindrical; the lower joints of the male with long bundles of hair.

Sp. 1. Femoratus. Fabr.

GENUS DCLXXXVIII. CECIDOMYIA, Latr. Illig. Meig. OLIGOTROPHUS, Latr.

Wings incumbent; antennæ moniliform, hairy.

Sp. 1. Lutea. Meig.

Stirps 4. Ocelli none; antennæ with short hairs; eyes oval, entire; palpi with their last joint very long; lips not inclined.

GENUS DCLXXXIX. CTENOPHORA, Meig. Illig. Latr. Fabr. TANIPTERA, Latr.

Antennæ filiform, pectinated in the males, serrated in the females: the second joint short, the third elongate.

Sp. 1. Atrata. Meig.

GENUS DCXC. PEDICIA, Latr. LIMONIA, Meig.

Antennæ subsetaceous, simple; the two first joints larger, elongate; the three following turbinate, the three next globular, and the seven last slender, cylindric.

Sp. 1. Rivosa.

Tipula Rivosa. Linné.

Inhabits Europe.

GENUS DCXCI. TIPULA, of authors.

Antennæ subsetaceous, simple; the first joint largest, cylindric; the second subglobose; the next cylindric; the third elongate.

Sp. 1. Oleracea. Linné, &c.

Inhabits Europe.

GENUS DCXCII. NEPHROTOMA, Meig. Latr.

Antennæ subsetaceous, simple; the joints for the most part cylindric; those of the male arched.

Sp. 1. Dorsalis. Meig.

Stirps 5. Ocelli none; antennæ with short hairs; eyes oval, entire; palpi with their last joint very long; lips very long, inclined.

GENUS DCXCIII. PTYCHOPTERYX. PTYCHOPTERA, Meig. Illig. Latr. Fabr.

Antennæ subsetaceous, simple; the first joint sub-obconic, third very long; the tenth and three or four following joints subovate.

Sp. 1. Contaminata. Fabr.

Stirps 6. Ocelli none; antennæ with short hairs; eyes oval, entire; palpi with their last joint very long, and always simple.

GENUS DCXCIV. LIMONIA, Meig. Illig. Latr.

Antennæ moniliform, fourteen or sixteen jointed wings with three perfect discoidal cells.

Sp. 1. Picta. Meig.

GENUS DCXCV. TRICHOCERA, Meig.

Antennæ setaceous, sixteen or fifteen jointed, the two first joints thick, subequal, shorter than the third; wings with three perfect discoidal cells.

Sp. 1. Hiemalis. Meig.

GENUS DCXCVI. ERIOPTERYX. ERIOPTERA, Meig.

Antennæ subsetaceous, fifteen jointed, all the joints except the first quite moniliform; wings with two perfect discoidal cells.

Sp. 1. Altra. Meig.

GENUS DCXCVII. HEXATOMA, Latreille.

Antennæ six jointed, subsetaceous, the two first joints shortest, the four others very long, cylindric.

Sp. 1. Nigrum.

Hexatoma nigra. Latr.

Inhabits the vicinity of Paris.

Stirps 7. Ocelli distinct; rostrum cylindric, elongate.

GENUS DCXCVIII. ASINDULUM, Latr. PLATYURA, Meig. Illig.

Eyes within and behind notched; proboscis much longer than the head.

Sp. 1. Nigrum. Latr.

GENUS DCXCIX. RHYPHUS, Latr. ANISOPUS, Meig. Illig.

Eyes entire; proboscis porrect, a little shorter than the head.

Sp. 1. Fenestrarum. Latr.

Inhabits Europe.

Stirps 8. Ocelli distinct; rostrum short, terminated by two lips.

GENUS DCC. CEROPLATUS, of authors.

Palpi very short; ovoid conic, obscurely unarticulate; antennæ compressed, fusiform.

Sp. 1. Tipuloides. Bosc. &c.

GENUS DCCI. MOLOBRUS, Latr. SCIAYA, Meig. Fabr. Illig. MACROCERA, Meig.

Palpi subfiliform, distinctly jointed; antennæ subsetaceous; eyes subunilunate; ocelli very distinct, placed near each other on the vertex.

Sp. 1. Thoma. Latr.

GENUS DCCII. MYCETOPHILA, Meig. Illig. Fabr. Latr.

Palpi subfiliform, distinctly jointed; antennæ subseta-

ceous; eyes entire, oval; ocelli very minute, distinct, the lateral ones placed one behind each eye.

Sp. 1. Lunata. Meig.

B. Antennæ massive or fusiform, and perfoliated.

Stirps 9. Ocelli three; antennæ nine-jointed.

GENUS DCCIII. *BIBIS*, Geoff. Schæf. Latr. Lam. &c.
Hirtæa, Fabr. Meig. Illig.

Thorax without spines on its anterior part; hinder tibiae produced into a strong hook.

Sp. 1. Hortulanus. Latr.

Inhabits Europe.

GENUS DCCIV. *DILOPHUS*, Meig. Illig. Latr.

Thorax with its anterior and posterior margins pectinated; anterior tibiae with their apex and middle externally pectinate-dentate.

Sp. 1. Febrilis. Meig.

Inhabits Europe.

Stirps 10. Ocelli three; antennæ eleven-jointed.

GENUS DCCV. *PENTHETRIA*, Meig. Latr.

Eyes oval, entire,

Sp. 1. Funebris. Meig.

GENUS DCCVI. *SCATHOPSE*, of authors. *CERIA*, Scop.^P

Eyes reniform or lunate.

Sp. 1. Nigra. Geoffroy.

Stirps 11. Ocelli none.

GENUS DCCVII. *CORDYLA*, Meig. Latr.

Antennæ twelve-jointed; eyes entire.

Sp. 1. Fusca. Meig.

GENUS DCCVIII. *SIMULIUM*, Latr. *ATRACTOCERA*^P
Meig.

Antennæ eleven-jointed; eyes lunulate.

Sp. 1. Reptans. Latr.

TRIBE II. STRATIOMYDES.

A. Antennæ not terminated by a seta.

Stirps 1. Antennæ with their last joint having eight rings.

GENUS DCCIX. *HERMETIA*, Latr. Fabr.

Antennæ with their last joint much compressed, its middle strangled.

Sp. 1. Illucens. Latr.

GENUS DCCX. *XYLOPHAGUS*, Meig. Fabr. Latr.

Antennæ cylindric, the last joint cylindric-conic, elongate; scutellum without spines; palpi longer than the proboscis.

Sp. 1. Maculatus. Meig.

GENUS DCCXI. *ACTINA*, Meig.

Antennæ cylindric, the last joint cylindric-conic, elongate; scutellum with six spines; palpi not longer than the proboscis.

Sp. 1. Chalybea. Meig.

GENUS DCCXII. *BERIS*, Latr.

Antennæ cylindric, the last joint cylindric-conic, elongate; scutellum with four or six spines; palpi very much shorter than the proboscis.

Sp. 1. Nigritarris. Latr.

Stirps 2. Antennæ, with their last joint having from four to six rings, fusiform, cylindric-conic, or conic.

GENUS DCCXIII. *STRATIOMYS*, of authors.

Antennæ very much longer than the head, the first and third joints very long, the latter subfusiform, compressed, with five rings; thorax bispinose.

Sp. 1. Strigata. Fabr.

Inhabits Europe.

GENUS DCCXIV. *ODONTOMYIA*, Meig. Illig. Latr.

Antennæ a little longer than the head, the last joint cylindric-conic, with six rings; thorax bispinose.

Sp. 1. Furcata. Meig.

Inhabits Europe.

GENUS DCCXV. *CLITELLARIA*, Meig. Illig. *EPHIPPIUM*, Latr.

Antennæ a little longer than the head, with their last joint conic, six-ringed, the two last forming a little style; thorax bispinose, the spines erect.

Sp. 1. Ephippium. Meig.

Inhabits Europe.

DCCXVI. *NEMOTELUS*, of authors.

Antennæ half the length of the head, the third joint fusiform, four-ringed; scutellum without spines; proboscis sheathed beneath a rostelliform process, on which the antennæ are inserted.

Sp. 1. Uliginosus. Fabr.

Inhabits Europe.

B. Antennæ terminated by a style or seta.

Stirps 3. Scutellum spinous.

GENUS DCCXVII. *ONYCERA*,* Meig. Illig. Latr.

Antennæ with their first and second joints forming a subfusiform club, the third styliform.

Sp. 1. Hydroleon. Meig.

Inhabits Europe.

Stirps 4. Scutellum without spines.

GENUS DCCXVIII. *VAPPO*, Latr. Fabr. *PACHYGASTER*, Meig.

Antennæ, with their two first joints transverse, the second with the third joints forming a sub-hemispheric head.

Sp. 1. Ater. Fabr.

Inhabits Germany and England.

GENUS DCCXIX. *SARGUS*, of authors.

Antennæ terminated by a seta longer than the antennæ, their second joint elongate; abdomen generally oblong.

Sp. 1. Xanthopterus. Fabr.

TRIBE III. TABANIDES.

Stirps 1. Wings incumbent; scutellum spinous.

GENUS DCCXX. *OXNOMYIA*, Latr.

Antennæ shorter, or scarcely longer than the head; the second joint subobconic, short; the third longer, elongate-conic, distinctly eight-ringed; ocelli three.

Sp. 1. Ferruginea. Latr.

Stirps 2. Wings divaricating; scutellum without spines; antennæ as long as, or a little longer, than the head.

GENUS DCCXXI. *PANGONIA*, Latr. Fabr. *TANYGLOSA*, Meigen.

Proboscis siphunculiform, coriaceous, very long, subpor-

* This genus probably ought to be placed in the second *Stirps*.

rected or subnubant: antennæ scarcely as long as the head; the second joint sub-transverse; the third longer, elongate-conic, sub-arcuate, distinctly eight-ringed: ocelli three.

Sp. 1. Muculata. Fabr.

GENUS DCCXXII. TABANUS, of authors.

Proboscis a little shorter than the head, terminated by large lips; antennæ as long as the head, the second joint cup-shaped, the third lunate-subulate, five-ringed; ocelli obsolete or wanting.

Sp. 1. Bovinus. Linné, &c.

Stirps 3. Wings divaricating; scutellum without spines; antennæ remarkably longer than the head.

GENUS DCCXXIII. HAMATOPOTA, Meigen, Illig. Latr. Fabr.

Antennæ with their first joint elongate, incrassate; the second very short, cup-shaped; the third elongate-conic, (longer than the first,) tubulated, four-ringed; ocelli obsolete or wanting.

Sp. 1. Pluvialis. Meig.

Inhabits Europe.

GENUS DCCXXIV. HEPTATOMA, Meig. Illig. Latr. Fabr.

Antennæ formed of cylindric joints; the second shortest; the third very long, four-ringed: ocelli obsolete or wanting.

Sp. 1. Bimaculata. Meig.

GENUS DCCXXV. CHRYSOPS, Meig. Illig. Latr. Fabr.

Antennæ, with the two first joints of nearly an equal length, the third joint as long as both the others, cylindric-conic, five-ringed; ocelli three.

Sp. 1. Cacutiens. Meig.

Inhabits Europe.

TRIBE IV. RHAGIONIDES.

GENUS DCCXXVI. PACHYSTOMUS, Latr.

Antennæ cylindric; third joint three-ringed, without a seta.

Sp. 1. Syrphoides. Latr.

Inhabits Germany.

GENUS DCCXXVII. RHAGIO, Oliv. Ross. Cuv. &c. LEP-TIS, Fabr.

Antennæ moniliform, the third joint not ringed, but terminated by a seta; palpi porrect.

Sp. 1. Scolopaceus. Latr.

Inhabits Europe.

GENUS DCCXXVIII. ATHERIX, Meig. Latr.

Antennæ moniliform, the third joint not ringed, but terminated by a seta; palpi erect.

Sp. 1. Maculata. Meig.

Inhabits Europe.

GENUS DCCXXIX. ORTOCHILE, Latr.

Antennæ terminated by a globose head, bearing a terminal seta.

Sp. 1. Nigro caruleus. Latr.

Inhabits the vicinity of Paris.

TRIBE V. DOLYCHOPIDES.

GENUS DCCXXX. PLATYZEA, Meig.

Antennæ as long as the head, their last joint very long,

terminated by a seta; hinder tarsi compressed-dilated, the third joint largest.

Sp. 1. Fasciata. Meig.

Inhabits Europe.

GENUS DCCXXXI. CALLOMYIA, Meig.

Antennæ as long as the head, their last joint very long, terminated by a seta; hinder tarsi filiform, the first joint largest.

Sp. 1. Elegans. Meig.

GENUS DCCXXXII. DOLYCHOPUS, Latr. Fabr. Walc.

Antennæ half the length of the head, the third joint triangular, bearing a seta on its hinder part.

Sp. 1. Nobilitatus. Fabr.

TRIBE VI. MYDASIDES.

GENUS DCCXXXIII. MYDAS, Fabr. Latr.

Antennæ longer than the head; the last joint very long, its point ovate-clayate, truncate, concave; the concavity including an obscure little style.

Sp. 1. Filata. Fabr.

Inhabits North America.

GENUS DCCXXXIV. THEREVA, Latr.

Antennæ as long, or longer, than the head; the last joint ovoid-conic, with a distinct style, terminated by a seta.

Sp. 1. Plebeia. Latr.

Inhabits Europe.

TRIBE VII. ASILIDES.

Stirps 1. Tarsi terminated by two claws, and two pulvilli; antennæ as long, or not much longer, than the head.

GENUS DCCXXXV. LAPHRIA, Meig. Illig. Lat. Fabr.

Antennæ with their first joint longer than the second; the last suboval, without a style.

Sp. 1. Gibbosa. Fabr.

GENUS DCCXXXVI. ASILUS, of Authors. ERAX, Scopoli.

Antennæ with their first joint longer than the second; the last elongate-conic, terminated by a very distinct style.

Sp. 1. Crabroniformis. Fabr.

Inhabits Europe.

GENUS DCCXXXVII. DASYPOGON, Meig. Illig. Latr. Fabr.

Antennæ with their two first joints nearly equal; the last subcylindric, terminated by a minute, articuliiform, conic style.

Sp. 1. Punctatus. Meig.

Inhabits Europe.

Stirps 2. Tarsi terminated by two claws and two pulvilli; antennæ much longer than the head, inserted in a common footstalk.

GENUS DCCXXXVIII. DIOCTRIA, Meig. Illig. Latr. Fabr.

Sp. 1. Oelandica. Fabr.

Inhabits Europe.

Stirps 3. Tarsi terminated by three claws; pulvilli wanting.

GENUS DCCXXXIX. GONYTES, Latr. LEPTOGASTER, Meig.

Abdomen very long, slender, thicker towards its extremity.

Sp. 1. Tipuloides. Latr.
Inhabits Europe.

TRIBE VIII. Empides.

Stirps 1. Proboscis perpendicular.

GENUS DCCXL. EMPIS, of Authors.

Antennæ three-jointed, the last joint terminated by a seta; palpi erect.

Sp. 1. Borealis. Fabr.

GENUS DCCXLI. SICUS, Latr. TACHYDROMYIA, Meig. Fabr.

Antennæ two-jointed, the last joint terminated by a seta; palpi porrect.

Sp. 1. Raptor. Latr.

Inhabits Europe.

Stirps 2. Proboscis porrected.

GENUS DCCXLII. HYBOS, Meig. Fabr. Latr. ACROMYIA, Bonelli.

Antennæ two-jointed, the last joint terminated by a seta; palpi porrect.

Sp. 1. Asiliformis. Latr.

TRIBE IX. ANTHRACIDES.

GENUS DCCXLIII. NEMESTRINA, Latr. RHYNOCERPHALUS, (Act. Soc. Hist. Nat. Moscov.)

Palpi exserted; proboscis very much longer than the head.

Sp. 1. Reticulata. Latr.

Inhabits Egypt and Syria.

GENUS DCCXLIV. MULIO, Latr. CYTHEREA, Meig. Fabr.

Palpi received into the cavity of the mouth; proboscis generally elongate, porrect.

Sp. 1. Obscura. Latr.

GENUS DCCXLV. ANTHRAX, of Authors.

Palpi received into the cavity of the mouth; proboscis short, not porrect.

Sp. 1. Hottentotta. Fabr.

Inhabits Europe.

TRIBE X. BOMBYLIDES.

Stirps 1. Proboscis never longer than the head, its point incrassated; antennæ with their first joint longest, and thicker than the third.

GENUS DCCXLVI. CYLLENIA, Latr.

Antennæ shorter than the head, first joint not very thick; abdomen elongate.

Sp. 1. Maculata. Latr.

Inhabits France.

GENUS DCCXLVII. PLOAS, Latr. Fabr. CONOPHORUS, Meig.

Antennæ rather longer than the head, the first joint very large, cylindric-conic; abdomen short.

Sp. 1. Hirticornis. Latr.

Inhabits Montpellier.

Stirps 2. Proboscis always longer than the head, pointed; antennæ with the third joint larger than the first.

GENUS DCCXLVIII. BOMBYLIUS, of Authors.

Palpi distinct; antennæ with their first joint much longer than the second.

Sp. 1. Major, of authors.

Inhabits Europe.

GENUS DCCXLIX. PHTHIRIA, Meig. Latr.

Palpi distinct; antennæ with their two first joints short and equal.

Sp. 2. Fulva. Meig.

GENUS DCCL. USIA, Latr.

Palpi not distinct; antennæ with their two first joints short and equal.

Sp. 1. Enea. Latr.

TRIBE XI. ACROGERIDES.

Stirps 1. Proboscis distinct; antennæ two or three jointed, with or without a terminal seta.

GENUS DCCLI. PANOPS, Lam. Latr.

Antennæ longer than the head; three-jointed, the last joint elongate, cylindric, without a terminal seta.

Sp. 1. Baudini. Lam.

Inhabits New Holland.

GENUS DCCLII. CYRTUS, Latr.

Antennæ very small, two-jointed; the last joint ovoid, with a terminal seta.

Sp. 1. Acephalus. Latr.

Stirps 2. Proboscis obscure; antennæ three-jointed, not terminated by a seta.

GENUS DCCLIII. ASTOMELLA, Dufour, Latr.

Sp. 1. Marginata. Dufour.

Inhabits Spain.

Stirps 3. Proboscis obscure; antennæ two-jointed, the last joint terminated by a seta.

GENUS DCCLIV. ACROCERA, Meig. Latr.

Antennæ inserted on the vertex.

Sp. 1. Sanguinea. Meig.

GENUS DCCLV. OGCODES, Latr. HENOPS, Illig. Walck. Meig. Fabr.

Antennæ inserted anteriorly over the cavity of the mouth.

Sp. 1. Gibbosus. Latr.

Inhabits Germany and England.

TRIBE XII. SYRPHIDES.

Stirps 1. Head anteriorly conic-produced. Antennæ much shorter than the head, placed in a common elevation. Oval cavity on the nasal prominence. Wings divaricating.

GENUS DCCLVI. RHINGIA, of authors.

Head anteriorly much produced, terminated by the proboscis.

Sp. 1. Rostrata, of authors.

Inhabits Europe.

GENUS DCCLVII. SERICOMYIA, Latr.

Antennæ with their seta plumose, inserted at the dorsal juncture of the second and third joints; last joint of the antennæ suborbicular.

Sp. 1. Laphonum. Latr.

Inhabits Europe.

GENUS DCCLVIII. VOLUCCELLA, Geoff. Schæff. Latr. PTEROCERA, Meig.

Antennæ with their last joint elongate; seta plumose, inserted at the dorsal juncture of the second and third joint.

Sp. 1. Pelucens. Latr.

Inhabits Europe.

GENUS DCCLIX. EVISTALIS, Latr. Fabr. HELIOPHILUS, Meig. Illig.

Antennæ contiguous at their base, their last joint broader than long; seta (simple or slightly plumose) inserted beyond the dorsal junction of the second and third joints; head anteriorly distinctly rostriform.

Sp. 1. Narcissi. Fabr.

GENUS DCCLX. HELOPHILUS. ELOPHILUS, Meig. Illig. Latr.

Antennæ contiguous at their base; their third joint longer than broad; seta (simple or slightly plumed) inserted beyond the dorsal juncture of the second and third joints; head anteriorly distinctly rostriform.

Sp. 1. Tenax. Latr.

Inhabits Europe.

GENUS DCCLXI. SYRPHUS, of authors.

Antennæ separate at their base; their last joint suborbiculate; seta inserted beyond the dorsal junction of the second and third joints; abdomen elongate-subquadrate, gradually somewhat narrower towards its extremity.

Sp. 1. Variabilis. Panz.

Inhabits Europe.

GENUS DCCLXII. DOROS, Meig. Illig.

Antennæ separate at their base; their last joint suborbiculate; seta inserted beyond the dorsal juncture of the second and third joints; abdomen clavate, contracted at each side of its base.

Sp. 1. Conophseus.

Milesia conophsea. Fabr.

Syrphus coarctatus. Panz.

Inhabits Europe.

GENUS DCCLXIII. SCÆVA, Fabr.

Antennæ separate at their base; their last joint subovate; seta inserted beyond the dorsal juncture of their second and third joints; abdomen subovate trigonal; the length double the breadth.

Sp. 1. Pyrastris. Fabr.

Inhabits Europe.

Stirps 2. Head not anteriorly conic-produced; antennæ about the length of the head, placed in a common elevation; oval cavity on the nasal prominence; wings deflexed or slightly divaricating.

GENUS DCCLXIV. PARAGUS, Latr.

Antennæ separate at their base; their two first joints subequal; seta simple, not distinctly articulated.

Sp. 1. Bicolor. Latr.

GENUS DCCLXV. PSARUS, Latr. Fabr.

Antennæ inserted on a common elevation; the second

joint larger than the first; seta thick, styliform, distinctly biarticulate.

Sp. 1. Abdominalis. Fabr.

Stirps 3. Head not anteriorly conic-produced; antennæ very much longer than the head; placed on a common elevation; oval cavity on the nasal prominence; wings deflexed.

GENUS DCCLXVI. CHRYSOTOXUM, Meig. Latr.

Antennæ subcylindric; their last joint having a seta at its base.

Sp. 1. Arcuatum. Latr.

Inhabits Europe.

GENUS DCCLXVII. CERIA, Fabr. Latr. Illig. Meig.

Antennæ with their first and second joints forming an oval mass terminated by a style.

Sp. 1. Vespiiformis. Latr.

Inhabits Italy and Barbary.

GENUS DCCLXVIII. CALLIGERA, Meig. Panz.

Antennæ with their first and second joints forming an elongate mass, terminated by a style.

Sp. 1. Ænea. Meig.

Inhabits Europe.

Stirps 4. Head not anteriorly produced; nasal part straight, not prominent; antennæ inserted separately, very much longer than the head; wings deflexed.

GENUS DCCLXIX. APHRITIS, Latr. MICRODON, Meig.

Antennæ with their third joint conic, elongate, its base bearing a seta.

Sp. 1. Auro-hubescens. Latr.

Inhabits Europe.

Stirps 5. Head not anteriorly produced, nasal parts concave or straight; antennæ inserted separately, very much shorter than the head.

GENUS DCCLXX. MERODON, Meig. Fabr. Latr.

Hinder thighs (of the male at least) large, very thick, arcuated, points produced into a strong tooth; antennæ with their joints trigonal.

Sp. 1. Clavipes. Meig.

Inhabits Europe.

GENUS DCCLXXI. EUMENOS, Meig.

Hinder thighs (of the males at least) large, very thick, elongate-ovate, denticulated beneath; antennæ with their last joint much compressed; abdomen cylindric.

Sp. 1. Pipiens.

Milesia pipiens. Fabr.

Inhabits Europe.

GENUS DCCLXXII. MILESA, Latr. Leach.

Hinder thighs (of the males at least) large, very thick, elongate-ovate, denticulate beneath; antennæ with their last joint much compressed; abdomen trigonate.

Sp. 1. Annulatus.

Syrphus annulatus. Fabr.

Inhabits Europe.

GENUS DCCLXXIII. SPILONYMIA, Meig. HELIOPHILUS, Meig.

Hinder thighs (of the males at least) large, thick, elongate, subcylindric; antennæ with their last joint short, subovate, much compressed.

Sp. 1. Impigera.

Syrphus Impigera. Rossi.

Inhabits Europe.

GENUS DCCLXXIV. CHRYSOGASTER, Meig.

Hinder thighs not different from the others; antennæ with their last joint elongate-conic, much compressed.

Sp. 1. Æneus.

Erastalis æneus. Fabr.

Inhabits Europe.

TRIBE XIII. CONOPSIDES.

Stirps 1. Antennæ with their second joint as long, or longer than the third, forming with it a fusiform, or sub-ovate compressed club; body elongate.

GENUS DCCLXXV. CONOPS, of authors.

Proboscis porrect; ocelli none; antennæ very much longer than the head, apex fusiform.

Sp. 1. Aculeata. Fabr.

Inhabits Europe.

GENUS DCCLXXVI. ZODION, Latr.

Proboscis porrect; ocelli three; antennæ shorter than the head, apex subovoid.

Sp. 1. Conopsidea. Latr.

Inhabits Italy and France.

GENUS DCCLXXVII. MYOPA, of authors. STOMOXOIDES, Schœffer.

Proboscis very long, filiform geniculated beneath twice.

Sp. 1. Dorsalis. Fabr.

Inhabits Europe.

Stirps 2. Antennæ with their second joint much smaller than the last, which is patelliform; body short.

GENUS DCCLXXVIII. BUCENTES, Latr.

Proboscis geniculated twice.

Sp. 1. Cinereus. Latr.

Inhabits France and England.

GENUS DCCLXXIX. STOMOXYS, of authors.

Proboscis geniculated once.

Sp. 1. Calcitrans, of authors.

Inhabits Europe.

TRIBE XIV. MUSCIDES.

Stirps 1. Antennæ inserted near the mouth; palpi external.

GENUS DCCLXXX. PHORA, Latr. TRINEURA, Meig. NODA, Schellenberg.

Antennæ with the two first joints very minute, obsolete, the third thick, subglobose, furnished with a long seta.

Sp. 1. Aterrima. Latr.

Inhabitants Europe.

Stirps 2. Antennæ inserted near the front, setigerous; palpi internal; halteres visible; anterior legs simple; head subglobose; hinder legs very large.

GENUS DCCLXXXI. SPHEROCERA, Latr. BORBORUS? Meig.

Antennæ almost completely exserted, last joint semiorbicular.

Sp. 1. Curvipes. Latr.

Inhabits Europe.

GENUS DCCLXXXII. THYREOPHORA, Meig. Illig. Latr.

Antennæ almost entirely concealed within a deep excavation in the front, last joint globular.

Sp. 1. Cynophila. Meig.

Inhabits Europe.

Stirps 3. Antennæ inserted near the front, setigerous; palpi internal; halteres visible; anterior legs simple; head not subglobose; hinder legs not larger than the rest; wings horizontal; eyes sessile.

GENUS DCCLXXXIII. LAUXANIA, Latr. Fabr. Panz.

Antennæ very much shorter than the head; head transversely compressed.

Sp. 1. Rufitarsis. Latr.

Inhabits Europe.

GENUS DCCLXXXIV. MOGILLUS, Latr.

Antennæ shorter than the head; head hemispheric.

Sp. 1. Cellarius. Linné.

Inhabits Europe.

Stirps 4. Antennæ inserted near the front, setigerous; palpi internal; halteres visible; anterior legs simple; head not subglobose; hinder legs not longer than the rest; wings divaricating; eyes simple; vertex narrow.

GENUS DCCLXXXV. MICROPEZA, Meig. Latr.

Body long; legs long; thorax subovoid; abdomen with its base attenuated.

Sp. 1. Cynipæa. Latr.

GENUS DCCLXXXVI. TEPHRITIS, Latr. Fabr. Illig. TRYPTETA, Meig. DACUS, Fabr.

Thorax cylindric; proboscis entirely retractile.

Sp. 1. Cardui. Latr.

Inhabits Europe.

GENUS DCCLXXXVII. PLATYSTOMA, Meig. Latr. DICTYA, Fabr.

Thorax cylindric; proboscis very much thickened, much exserted.

Sp. 1. Transversa. Meig.

Inhabits Europe.

Stirps 5. Antennæ inserted near the front, setigerous; palpi internal; halteres visible; anterior legs simple; head not subglobose; hinder legs not larger than the rest; wings deflexed; eyes pedunculated; vertex broad.

GENUS DCCLXXXVIII. ACHIAS, Fabr. Latr.

Antennæ inserted on the front.

Sp. 1. Oculatus. Fabr.

GENUS DCCLXXXIX. DIOPSIS, of authors.

Antennæ inserted under the eyes, on their peduncle.

Sp. 1. Ichneumonca. Linné.

Stirps 6. Antennæ inserted near the upper part of the head, setigerous; palpi internal; halteres visible; anterior legs simple; head not often subglobose; hinder legs not larger than the rest; wings deflexed; eyes sessile; vertex broad.

GENUS DCCXC. CALOBATA, Meig. Illig. Latr. Fabr.

Antennæ very much shorter than the head; the third joint longer than the second; body long, filiform; legs long, filiform.

Sp. 1. Filiformis. Latr.

Inhabits France and England.

GENUS DCCXCI. OSCINIS, Latr. Fabr. CHLOROPS, Meig. Illig. Panz. OTITES? Latr. (obsolete.) CHAMÆMYIA? Meig.

Antennæ very much shorter than the head, the third joint longer than the second; legs not long, or filiform.

Sp. 1. Elegans. Latr.

Inhabits Europe.

GENUS DCCXCII. TETANOCERA, Dumeril, Latr.

Antennæ of the length of the head; the second and third joints nearly equally long.

Sp. 1. Marginata. Latr.

Inhabits Europe.

GENUS DCCXCIII. SEPEDON, Latr. BACCA, Fabr.
MULIO, Schellenberg.

Antennæ very much longer than the head, inserted on an elevation; the second joint very long, cylindric.

Sp. 1. Palustris. Latr.

Inhabits Europe.

GENUS DCCXCIV. LOXOCERA, Meig. Illig. Latr. Fab.

Antennæ very much longer than the head; last joint linear; abdomen narrow, linear.

Sp. 1. Ichneumonina. Meig.

Inhabits Europe.

GENUS DCCXCV. SCATOPHAGA, Meig. Latr.
PYROPA, Illig.

Antennæ shorter than the head; head round, subglobose; vertex horizontal; body very much elongated.

Sp. 1. Merdaria. Latr.

Inhabits Europe.

GENUS DCCXCVI. ANTHOMYIA, Meig. Illig. Latr.

Antennæ shorter than the head; head hemispheric, transverse; vertex inclined; body not much lengthened.

Sp. 1. Pluvialis. Latr.

Inhabits Europe.

Stirps 7. Antennæ inserted near the upper part of the head, not setigerous; palpi internal; halteres visible; anterior legs differing in form from the others.

GENUS DCCXCVII. PIPUNCULUS, Latr.

Antennæ two-jointed, the last joint subulated at its extremity; anterior legs simple.

Sp. 1. Campestris. Latr.

Inhabits Europe.

GENUS DCCXCVIII. SÆNOPINUS, Latr. Fabr. CONA,
Schellenberg.

Antennæ three-jointed; anterior legs simple.

Sp. 1. Niger. Latr.

Inhabits Europe.

GENUS DCCXCIX. OCHTHERA, Latr. MACROCHIRA,
Meig.

Anterior legs raptorial; antennæ terminated by a bearded seta.

Sp. 1. Mantis. Latr.

Inhabits Europe?

Stirps 8. Antennæ frontal; palpi internal; halteres entirely or partly concealed; wings deflexed.

GENUS DCCC. LIPSE, Latr.

Legs all alike.

Sp. 1. Tentaculata. Latr.

Stirps 9. Antennæ frontal, very short; palpi internal; halteres entirely or partly concealed; wings divaricating.

GENUS DCCCI. MELANOPHORA, Latr.

Antennæ contiguous at their base, diverging, last joint lenticular.

Sp. 1. Rivalls. Latr.

GENUS DCCCII. METOPIA, Latr.

Antennæ contiguous at their base, diverging, last joint oblong.

Sp. 1. Leucophthalmus. Latr.

Inhabits Europe.

GENUS DCCCIII. PHASIA, Latr. Leach. THEREVA, Fabr.
Walck. Meig. Panz.

Antennæ distant, sub-parallel, last joint subquadrate, with a biarticulate seta. (Body short; abdomen depressed, semi-circular; wings large.)

Sp. 1. Variabilis. Leach.

Musca hemiptera. Linn.

Inhabits Europe.

Stirps 10. Antennæ frontal, as long as the face; palpi internal; halteres entirely or partly concealed; wings divaricating.

GENUS DCCCIV. MUSCA, of authors.

Antennæ with the third joint very much longer than the others; abdomen moderately long, subacuminate.

Sp. 1. Vomitoria. Latr.

Common blue-bottle fly.

Inhabits Europe.

GENUS DCCCIV. OCYPTERYX, Leach. OCYPTERA, Latr.
EXORISTA, Meig. ERIOTHRIX, Meig.

Antennæ with their last joint longer than the others; abdomen distinctly annulated, rounded.

Sp. 1. Lateralis. Leach.

Inhabits Europe.

GENUS DCCCVI. GYMNOSOMA, Meig. Leach.

Antennæ with their last joint longer than the others; abdomen semicircular, subunarticulate.

Sp. 1. Rotundata. Meig.

Inhabits Europe.

GENUS DCCCVII. ECHINOMYIA, Dumeril, Latr.

TACHINA, Meig. Fabr.

Antennæ with their second joint longer than the others; abdomen subglobose, and very bristly.

Sp. 1. Grossa. Latr.

Inhabits the European woods.

GENUS DCCCVIII. TACHINA.

Antennæ with their second joint longer than the others; abdomen ovate, rather bristly.

Sp. 1. Fera.

Musca fera. Linné.

Inhabits the European woods.

TRIBE XV. OESTRIDES.

The larvæ of all the insects composing the present family reside in the frontal sinuses, under the skin, or in the stomachs, of granivorous mammalia. Their curious economy has been admirably detailed in the third volume of the *Transactions of the Linnean Society of London*, by Mr Bracy Clark, who has lately republished his Dissertation, under the title, *An Essay on the Bots of Horses and other animals.* London, 1815.

GENUS DCCCIX. OESTRUS, of authors.

Wings, with the two exterior hinder cells complete, the other hinder cells terminal. Thorax with its surface unequal. Abdomen with its point deflexed; of the female

acuminate. Eyes distant; of the male closer than those of the female.

* *Thorax roughish, with elevated points.*

The larvæ of the species of this division of the genus inhabit the frontal sinuses.

Sp. 1. Ovis. Oestrus ovis. Clark, Trans. Lin. Soc. iii.

Inhabits the frontal sinuses of the sheep in the larva state; the perfect insect is found on walls and stones in the vicinity of sheep-folds.

** *Thorax with square shining naked spots.*

The larvæ of this section reside beneath the skin of herbivorous mammalia.

Sp. 2. Bovis.

Oestrus Bovis. Clark, Trans. Lin. Soc. iii.

The larvæ of this species, named by the peasants Warbles or Wornils, are found beneath the skin on the backs and loins of oxen, causing tumors as large as pullets' eggs. The perfect insect, or gadfly, is found about the end of summer, and is much dreaded by oxen.

GENUS DCCCX. GASTEROPHILUS, Leach. OESTRUS, of authors.

Wings, with all the hinder cells terminal. Thorax, with its surface smooth. Abdomen, with its extremity inflexed; of the female, very much elongated and attenuated. Eyes, in both sexes, equally distant.

The larvæ of the Gasterophilus, as their name imports, inhabit the stomach of herbivorous quadrupeds, and are called bots; the perfect insects bot-flies.

Sp. 1. Equi. Leach, Mem. Wern. Nat. Hist. Soc. vol. ii.

Oestrus Bovis. Linné.

Oestrus Equi. Clark, Trans. Lin. Soc. vol. iii.

The larva inhabits the horse.

SECT. II. EPROBOSCIDEA.

The larvæ are nourished within the abdomen of the mother, and, when full grown, are passed in the form of an oviform pupa, covered with the indurated skin of the larva. We have described the species in the second volume of the Memoirs of the Wernerian Natural History Society of Edinburgh.

Stirps 1. Wings, two; the hinder cell only commenced. Thorax anteriorly entire, acuminate.

GENUS DCCCXI. HIPPOBOSCA, of authors.

Ocelli, none.

Sp. 1. Equina. Linné.

Inhabits the horse, and is vulgarly called Forester.

Stirps 2. Wings, two; the hinder cells complete. Thorax anteriorly notched for the reception of the head.

* *Wings of nearly an equal breadth throughout.*

GENUS DCCCXII. OLFERSIA. FERONIA, Leach.

Ocelli, none.

Sp. 1. Spinifera. Leach, Mem. Wern. Soc. vol. ii.

GENUS DCCCXIII. ORNITHOMYIA. Latr. Oliv. Leach.

Ocelli, three, situated in foveolæ.

Sp. 1. Avicularia.

Hippobosca Avicularia. Linné.

Inhabits the black grouse and tit pipit.

** *Wings acuminate.*

GENUS DCCCXIV. STENEPTERYX, Leach.

Ocelli, three.

Sp. 1. Hirundinis.

Hippobosca hirundinis. Linné.

Inhabits the nests and bodies of the house-swallow.

GENUS DCCCXV. OXYPTERUM, Kirby, MSS. Leach.

Ocelli, none.

Sp. 1. Kirbyanum.

Oxypterum Kirbyanum. Leach, Mem. Wern. Soc. vol. ii.

Inhabits England.

Stirps 3. Wings, none. Thorax anteriorly notched for the reception of the head.

GENUS DCCCXVI. MELOPHAGUS, Latr. Leach.

Ocelli, none.

Sp. 1. Ovinus.

Hippobosca ovina. Linné.

Inhabits the sheep.

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is of a small iron wheel, which is attached to an apparatus like a turner's lathe, and kept in motion by the foot. The tools are tightened by a screw, and the stone to be engraved is applied by the hand to the tool as it revolves, and is shifted and conducted as required. The tools are generally of iron, and sometimes of brass; their forms are various, generally resembling chisels and gouges: some have small round heads like buttons, others flat, &c.; and when the stone has been engraved, it is polished on wheels of hair brushes and tripoli.

See Strutt's *Dictionary of Engravers*; Bryan's *Dictionary of Painters, Engravers, &c.*; Landseer on *Engraving*; Heincken *Idée Generale d'une Collection complete d'Estampes*; Vasari *Vite de' Pittori*; Orlandi, *Abecedario Pittorio*; Christ. *Dictionnaire des Monogrammes*; Papillon *Histoire de la Gravure en Bois*; Felibien *Principes de l'Architecture et des autres Arts qui en dependent.* (P. G.)

ENHARMONIC CHANGE, in music, is the occasional substitution, during performance, of one interval for another, differing therefrom, in a slight degree, in order to avoid that departure from the original pitch, which is called **DIVERGENCE of Tune**, (see that article.) The Rev. Henry Liston, in his valuable work, entitled *An Essay on perfect Intonation*, p. 72, after giving an extract from Huygen's *Cosmotheoria*, remarks, that the pitch, in singing, or on his organ, &c. cannot be preserved by slightly tempering every interval, but must be effected by substituting other notes, in particular situations; and, at page 120, he shews also, how, when the musician, by a series of dominants, has wandered away from his principal key, may recover his lost ground, while he seems to the hearer to be persevering in the same course, by only substituting a particular note, either higher or lower, by a *schisma*, by a major, or by a minor *comma*, than the one that is written, in the ordinary notation of music, and in which enharmonic changes are all marked in his improved mode of writing music for the performer, on perfect instruments.

ENHARMONIC Degree of Aristoxenus, or **DIESIS quadrantal**, is an interval, equal $\frac{1}{4}$ th of a major tone, or $\frac{1}{16}$ T; = 25.9271353S + f + 2m, or $26S + \frac{1}{2}f + 2\frac{1}{2}m$. Some authors have called this the quarter tone major, and Mr Hoyle denominates it the enharmonic diesis.

ENHARMONIC Degree of Euclid, is an interval three-thirtieths of the minor fourth, or $\frac{1}{10} \times 4th$, = 25.52674S + f + 2m, and its common log. is = 9875061.2634.

ENHARMONIC Diesis, (greater ϵ), or **diesis greater of the mean-tone system**, (see Vol. VII. Part II.) is an interval whose ratio is $\frac{125}{124}$, or $\frac{5^3}{2^7}$, = 21S + 2m in Fa-

rey's notation, = 9897000.4336 in common logs. = .0102999.5664 in recip. logs., = 0342153 in Euler's logs., = 1.9091591 in major comma logs., = 21.0157248 in schisma logs. In tuneable intervals it is VIII—3III, = 2VIII—3.6ths, = 4t—2III+3, by either of which methods of ascending and descending, or *vice versa*, in the tuning process, on an enharmonic organ of Liston's, this interval may be tuned above or below any given note; already it will be found tuned thereon, above $\sharp D$, $\sharp E$, $\sharp G$ and $\sharp B$, respectively.

In the symbols explained in Plate XXX. Vol. II. the following equations will be found to express the exact relation of this interval to all the other intervals therein, viz.

$$\epsilon = c + \epsilon \\ = 2 + 2\epsilon$$

$$\epsilon = R + \pi \\ = 21S + 2m$$

$$\epsilon = R + z + d \\ = \pi + F + 5S \\ = d + m + 9Z$$

$$\epsilon = S - \phi \\ = S - \delta \\ = 2 - \phi \\ = S - I \\ = L - \phi \\ = I - \delta \\ = f - c$$

$$\epsilon = 2c - Z \\ = 3c - d \\ = VIII - 3III$$

$$\epsilon = 21d + 63f - 19m$$

$$\begin{aligned} &= c + \phi - f \\ &= c + R - d \\ &= \epsilon + d - Z \\ &= c + d - 2Z \\ &= \pi + c - \phi c \\ &= \pi + Z - \phi c \\ &= d + D - \phi c \\ &= d + f - R \\ &= 11S + m - \epsilon \\ &= f + R - \epsilon \end{aligned}$$

$$\begin{aligned} \epsilon &= 2\pi - 2r - 5Z \\ &= \pi - Z - Z \\ &= \pi - r - 2Z \\ &= f - \epsilon - Z \\ &= S - f - Z \\ &= P - \pi - Z \\ &= P - f - \phi c \end{aligned}$$

$$\begin{aligned} \epsilon &= \pi - \pi \\ &= S - \delta \\ &= f - \phi c \\ &= d - \phi c \\ &= 2S - t \\ &= T - 2S \\ &= t - 2S \end{aligned}$$

$$\epsilon = 2d - 3S \\ = 2VIII - 3.6th$$

$$\epsilon = f + c - \pi$$

$$\begin{aligned} &= \pi + \epsilon - \phi \\ &= L + c - \phi \\ &= S + c - S \\ &= S + f - S \\ &= S + c - P \\ &= T + \epsilon - t \\ &= T + \epsilon - T \\ &= t + f - T \\ &= T + f - T \\ &= 4th + 3d - 2III \end{aligned}$$

$$\begin{aligned} \epsilon &= t - S - d \\ &= T - 2\phi - c \\ &= T - \phi - S \\ &= T - S - d \\ &= 2T - 2t - Z \\ &= 3T - 3t - d \end{aligned}$$

In that almost endless diversity of nomenclature, in which theoretical writers on music have indulged, this interval, besides the above, has received the denomination of *apotome* by some writers; *apotome major* by Salomon, Boethius, &c.; *bacchius* by Rameau; *comma* by Chladni; (see **COMMA**, Vol. VI. p. 639.) *comma greater* by some writers; *diesis* by Euler, Liston, &c.; *diesis minor* by Holder; *diesis major* by Rameau; *diminished second* by Liston; *harmonia* by Hanfling; *quarter note* by Boyce, Holder, &c.; *quarter tone* by several; *tierce wolf* by Earl Stanhope, &c. It is the error (b) of the trumpet, and French horn minor sixth.

ENHARMONIC Diesis (lesser) of the mean-tone system, (see Vol. VII. Part II.) occurs adjacent to the half notes of that system of temperament, is an interval equal $17\frac{1}{2}S + f + 14m$, = 17.8937641S + 2m, whose common log. is .9912224.3171.

ENHARMONIC Diesis of Aristoxenus, is one quarter of the major tone, $\frac{1}{4}T$, or his **ENHARMONIC Degree**, which see.

ENHARMONIC Diesis of Euclid, one-tenth of the minor fourth, or $\frac{1}{10} \times 4th$, or his **ENHARMONIC Degree**, which see.

ENHARMONIC Ditone of Aristoxenus, is an interval less than a minor fourth by half a major tone, = 4th— $\frac{1}{2}T$ = 202S + 4f + 17m, = 202.0039.12S + 4f + 17m; its common log. 9006375.2462.

ENHARMONIC Ditone of Euclid, is an interval $24\frac{30}{100}$ ths of the minor fourth, or $\frac{3}{10} \times 4th$, = 203.204712S + 4f + 17m, whose common logarithm is 9000490.1071.

ENHARMONIC Genus of the Greek music. See **GENERA**.

ENHARMONIC Interval of Good and Gregory, is the **Major Comma** $\frac{1}{10}$, which see.

ENHARMONIC quarter of a Tone of Rameau, is the **ENHARMONIC Diesis** $\frac{125}{124}$, which see. (c)

ENTOMOLOGY.

Attributed to Wm E. Leach

See Bonnet?

ENTOMOLOGY, from *ἔντομα*, an insect, and *λόγος*, a discourse; the science which treats of insects, a class of animals, which were formerly arranged, along with CRUSTACEA and ARACHNIDES, under the general denomination of insects (INSECTA,) which, as we have already shown under the article CRUSTACEOLOGY, are now universally allowed to be distinct. The word *ἔντομα* is derived from *ἐν*, into, and *τέμνω*, to cut; and *insectum* has a similar root, from *in*, into, and *seco*, to cut, because insects are divided into numerous segments, or from their being generally almost divided into two parts, which are merely attached to each other by a slender thread. The former term was made use of by Aristotle, who lived about 500 years before the Christian era, and seems to have been known much earlier than his time. It is defined by him to signify an animal which, by incisions, is severed into two or more parts. The latter word, *insectum*, is adopted by Pliny, and was in use among the Latins long before his time, and we find it applied in the same sense as the *ἔντομα* of Aristotle.

As the animals of this class constitute the most considerable portion of animated beings, it becomes one of the most interesting and important sciences which can engage the mind of the philosopher. The extreme difficulty of discriminating the characters and particular affinities of these beings, arising from their number and variety of form, in addition to their minuteness, more strongly claims his consideration. He who neglects the study of insects, or thinks it beneath his notice, cannot deserve our respect, as a general observer of nature, nor be considered a scientific naturalist. The views of such a man will be partial, and his inquiries circumscribed; he regards only an inconsiderable portion of animated nature; and he confines his remarks to such as, from their size and distinctness of character, present the least obstacle to investigation. In the study of entomology, the man of science will find abundant scope for the exercise of his zeal. The amazing number of species; their curious forms, so infinitely varied, and yet so nearly and gradually approximating through an endless series of transitions from one species to another; the diversity of structure observable in those parts which afford generic characters, added to the wonderful changes in form which they undergo, with their surprising economy,—are circumstances which contribute to render them objects of most curious speculation to the philosopher. And although the study of every class of animals is most indisputably attended with peculiar advantages, yet we shall venture to affirm, that it is from a knowledge of the characters, metamorphoses, and various modes of life, these little animals are destined to pursue, that he will obtain a more intimate acquaintance with the great laws of nature, and veneration for the Great Creator of all, than can be derived from the contemplation of any other class in nature. Many other attractions accompany the study of this department of science. The beauty of insects in general, renders them engaging to many who have neither time nor inclination for studying their more complicated structure; and the gaiety of their colours, often combined with the most graceful forms, displays a beauty, splendour, and vivacity, greater than that bestowed by the hand

of Nature on any of her other works. One defect in appearance must indeed be conceded; and this may be regarded, in point of beauty, a material defect; they are not always so considerable in magnitude as to become, even with these embellishments, so strikingly attractive. Were they equal in size to the smallest birds, their elegance would render them more inviting in the eyes of mankind in general; but, even amongst the minor species, when examined with a microscope, we find their beauty and elegance far superior to that of any other class in nature. "After a minute and attentive examination," says Swammerdam, "of the nature and structure of the smaller as well as the larger animals, I cannot but allow an equal, if not superior, degree of dignity to the former. If, whilst we dissect with care the larger animals, we are filled with wonder at the elegant disposition of parts, to what a height is our astonishment raised, when we discover these parts arranged in the least in the same regular manner!"

Insects may be divided into two kinds; those which are immediately or remotely beneficial or injurious to mankind. Many insects certainly seem not to affect us in any manner; others, and by far the greater number, most assuredly fall under one or the other denomination, and surely on this account demand our most serious attention; but, lest our allusion to the utility of some insects should seem hypothetical to the superficial observer, whilst the noxious effects of others are too obvious to admit of doubt, we shall be more explicit in this observation. The depredations of insects upon vegetable bodies are often detrimental; but it must be remembered, that in these ravages they often repay the injury they commit. The locust, the most destructive of all insects, whose numbers spread desolation through the vegetable world, are not (except on some occasions when their multiplication exceeds all bounds) unproductive of advantage. Although they deprive mankind of a certain portion of their vegetable food, yet, in return, their bodies afford nutriment of a wholesome and palatable kind, and in much greater abundance. The various species of locusts are the common food on which the inhabitants of many parts of the world subsist at particular seasons. The honey of bees, in many warm climates, constitutes another primary article of food. The caterpillars of several moths furnish materials for the silken raiment so universally worn by all ranks in the eastern parts of the world; and hence, in these countries, the silky produce of these industrious little animals is of as much use as the fleecy coat of the sheep is to us. As an object of traffic, silk is one of the utmost importance in China and Tartary; and, in those parts, paper is manufactured from the refuse of the same material. The extensive use of wax, in all ages, is well known; but it is less generally understood that all wax is not produced by the bee alone; the wax-insect of China is a very distinct animal: (See CICADA, *Index*; and Donovan's *Insects of China*.) Some insects are used with success in medicine; and many others (the cochineal, for instance,) are rendered useful in the arts; and greater numbers might perhaps also be employed for the same purposes. These few, out of a vast many more instances, are sufficient to prove the absurdity of an opinion, very prevalent, "that

insects are too insignificant to deserve the attention of the philosopher." But allowing these benefits to be unknown, and that the study of entomology is not productive of any substantial advantages, how absurd would it still be to treat such an extensive portion of the creation with neglect? The objection, that they are in nowise conducive to our interests (even if founded in truth), would be no evidence of the frivolity of the science, unless we are to conclude, that the only inquiries which merit our rational attention are those which tend to the gratification of selfishness. If this be admitted as an objection, how many objects of philosophical investigation must be rejected as frivolous! From the earliest period in which the light of natural knowledge dawned; this class of animals has obtained considerable attention; and although the study has not at all times been cultivated with equal ardour, yet we shall hereafter be enabled to prove that it has not been utterly neglected, but has engaged the study of men endowed with talents as splendid, and judgment as refined, as the most exalted of those who affect to treat it with contempt.

HISTORY.

FROM the earliest period of which any authentic records remain, this science has obtained a very considerable portion of attention; but the total destruction of the great public libraries, has deprived us of the means of ascertaining to what state this branch of science had attained, till within about 2000 years of the present time. We shall now endeavour to lay before the reader an account of these works; and, as we deem the subject of importance, shall, as far as our limits will allow, mention every work, however slight, which has been productive of any material information; at the same time, we wish it to be understood, that we do not consider it necessary, or within our province, to enter at large upon a critical analysis of the multitude of writings before us, but only such as we have had an opportunity of consulting with attention, describing the leading intention of their authors respectively, which we shall enumerate as nearly as possible in chronological order.

Some books appear to have been written prior to the date of those which have descended to us, as we infer from various hints recorded in the earliest of those works now extant.

The oldest records on this subject are to be found in the sacred writings, where mention is made of locusts, flies, and caterpillars; and it is probable Moses had acquired a slight knowledge of this science from the Egyptian sages, as his works abound with passages relating to insects; and amongst the obsolete works of Solomon, he is said to have treated of "creeping things."

Hippocrates, who lived about 500 years before Christ (as we are told by Pliny), wrote on insects. The writings of the earlier Greek and Latin philosophers, quoted by Pliny, afford extracts of his labours.

Aristotle flourished in the succeeding age. He wrote, amongst many other works, a *History of Animals*, an elementary book, giving a general and comprehensive view of the animal creation; but he rarely descends to the description of species. It is a work of the greatest merit, which no one can impartially peruse without confessing the intimate knowledge its writer must have possessed of nature. The insect class is treated of in several parts of his work. In the seventh chapter of his first

book, we find the term *ἰνσημα* is that of a family, which constitutes one of his four orders of animals with colourless blood. These animals he terms *exsanguiueous*; and, in his definitions, he points out, with great accuracy, in what they differ from the other three divisions of this class, viz. *Mollusca*, *Crustacea*, and *Testacea*. In the first chapter of the fourth book, we find the essential characters more clearly given, namely, the incisions on the back or belly, or both, by which their bodies appear to be divided into two or more parts. In another part of his book, more particularly devoted to insects, he describes them as having three parts, the head, trunk, and abdomen: the second part is denominated an intermediate portion, corresponding with the back and breast of other animals. He also adds, they have feet. In subsequent passages, he describes insects which fly, and those that walk. Amongst the former, he notices those with naked wings, and those covered with a sheath; and he observes, that some of these have the sheaths divided, and others immovably connected. The naked winged insects are of two kinds, some with four, and others with two wings. Some of those with four naked wings are furnished with stings at the extremities of their bodies, whilst those with two are destitute of this apparatus. He describes, with attention, the horns (*antennæ*) of the butterflies and locusts. When noticing the legs, he remarks, the leaping feet of the locusts, which he compares to those of springing animals. The accuracy with which this learned philosopher has described the various parts of these animals, cannot but astonish the learned entomologist; he will be surprised at their consistency. Their accordance with the entomological definitions of the modern systematists, will excite further comparison; and the natural result will be, that, with the acquired knowledge of 2000 years, so far as he does proceed, we, until lately, have been unable to amend his observations. A cursory perusal of the whole work will show, that whatever might be the merits of this great man, his writings evince too much acquaintance with the science of nature to be the produce of any individual genius, shining with unborrowed light; for, when we reflect on the slow manner in which all human knowledge is developed, we are readily convinced that the science of nature must have made some considerable advancements before his time; and that he has derived considerable assistance from the works of more ancient naturalists.

Ælian, in his work on animals, *Περὶ ζῴων*, appropriates several chapters to insects, without entering into the system at large, confining himself to particular kinds; and those noticed are described with attention, as crickets, the generation of wasps, of cantharides, &c.

Amongst the Greek writers who immediately, or within a few centuries, followed Aristotle, treating on insects, were Democritus, Neoptolemus, Philistus, Nicander, Herodius, with many others of less note. These writers were probably cotemporary with Pliny; and, during the same period, several Latin writers seem to have been induced to pursue this science, through the influence of the Greeks, who were insensibly led to it from attending to the culture of bees, which at that time was attended to with the most enthusiastic ardour. Aristarchus of Soli is said to have written on the subject, from the result of fifty years experience; and Philiscus to have employed his whole life in forests and deserts attending to their history.

Pliny, in the eleventh book of his *Historia Naturalis*,

treats of insects. His observations are chiefly copied from the work of Aristotle. In his day, the culture of silkworms was an object of attention. He says that garments of silk were much admired in his days by the fair sex, as it shewed their form to advantage from the delicacy of its texture.

From the time of Pliny till the overthrow of the Roman empire, the study seems not to have been totally disregarded; but we are ignorant what steps were advanced during that period. Amongst the writers were Titus, Ætius, Alexander, Oribasius, Trallian and Paulus Ægineta, who lived between the fourth and seventh century. Between the ninth and twelfth century, some of the Arabian botanists distinguished themselves as entomologists. The principal were Rhazes, Avicenna, Avenzoar, and Averrhoes. From this period till the fifteenth century, a few obscure writers, scarcely worthy of notice, appeared, viz. Myrepsus, Platerus, &c.

Albertus Magnus wrote a general zoological work, entitled, *De Animalibus*, part of which treats of insects. He died 1280, but his work did not appear till the year 1619, being printed at Venice.

In 1549, Agricola published his work, *De Animalibus Subterraneis*, which contains a systematic arrangement of insects. He reduces all insects to three principal classes, viz. 1. Those that walk; 2. Those that fly; and 3. Those furnished with swimming feet; and describes a number of species.

In 1552, Edward Wotton published a work, entitled, *De Differentiis Animalium*, in which he treats largely on insects. The book is in folio, and appeared three years before the author's death.

In 1553, Rondeletius of Montpellier gave his valuable work, "*Universa aequalium Historia pars altera*," to the world, in which he treats of insects, which he accompanies with wood cuts.

In 1599, in folio, was published at Naples, "*Ferrante Imperato del' Historia Naturale libri 28.*"

In 1602, a very voluminous work was published, entitled *De Animalibus Insectis*, by the "indefatigable compiler" Aldrovandus. Donovan is inclined to give him considerable credit. He has certainly acquitted himself in collecting together the undigested observations of the ancients; but from his entire ignorance of the subject, he has necessarily fallen into all the errors of his predecessors: we must, however, allow, that he has acted with candour, having rarely omitted to mention his authorities. He was professor of medicine at Bologna, and employed much of his time in the study of insects, and expended large sums of money in acquiring specimens, and employing artists to figure them. He is stated to have paid two hundred florins annually to an artist, who was occupied solely in the delineation of insects. He divides insects into two great orders, 1. *Terrestrial*; 2. *Aquatic*, which he terms *Insecta farica*, and *Non farica*: these he divides into sub-orders, from the number and situation of their wings and feet. His figures are but rudely expressed, which is excusable. At this time a taste for more expensive embellishments began to prevail; but as the art of engraving on copper had scarcely emerged from its infancy, these works were exclusively produced by artists themselves.

In 1612, the *Historia Animalium Sacra*, by Wolfgang Frenzius, dividing insects into three classes, 1. *Aeria*, 2. *Aquatica*, 3. *Terræa*, and containing several new observations, appeared: and three years afterwards, in the year 1616, at Rome, a pamphlet of about one hundred

pages, in Latin, entitled, *De Formica*, by Jeremiah Wilde.

In 1622, a work but remotely relating to insects, in 4to, appeared in Edinburgh, bearing the following title, *Hieroglyphica Animalium Terrestrialium, &c. quæ in Scripturis Sacris inveniuntur et florum aliorum, cum eorum interpretationibus*; which, being the first work relating to insects published in Britain, is not unworthy of notice as a curiosity.

In 1630, a thin quarto, by Hoefnagle, was published under the title of *Diversæ Insectorum volatiliū Icones ad vivum depictæ, per D. J. Hoefnagle, typisque mandata a Nicolao Johanni Vischer*, containing 326 figures, some of which are very indifferent. He has not adopted any particular mode of arrangement, but contented himself with delineating them in the states presented by chance, not always following them throughout their progressive changes.

In 1634, Thomas Mouffet published his *Insectorum sive minimorum Animalium Theatrum*, which appears to be the second work on entomology published in our country. This work, as its title indicates, is written in the Latin language; it appeared in London in one volume folio, and contains numerous wooden cuts, rudely executed, accompanied by long, tedious, and often ridiculous and fanciful descriptions of the species. The first seven chapters (*capita*) are occupied with heavy details concerning the common hive bee (*Apis Mellifica*). The eighth is entitled, *De Vespis*. The ninth, *De Crabrone et Tenthrædine*, which includes the humble bees (*Bombæ*). The tenth, eleventh, and twelfth, *De Muscis*, which includes, with several dipterous (or two-winged insects) many hymenopterous, as well as neuropterous insects. The thirteenth, *De Culicibus*. The fourteenth, *De Papilionibus*, which occupies two hundred pages, the margins being embellished with 112 wooden figures, executed in the rudest style, yet in most instances tolerably intelligible to the skillful entomologist. The fifteenth, *De Cicindela*, including the glow-worm (*Lampyrus*), and several others. The sixteenth, *De Locustis*. The seventeenth, *De Cicadis et Gryllis*. The eighteenth, *De Blattis*. The nineteenth, *De Buprestide et Cerambice*. The twentieth, *De Cantharide*. The twenty-first, *De Scarabæis*, which includes many of the larger beetles, (*Coleoptera*). The twenty-second, *De Scarabæis Minoribus*. The twenty-third, *De Proscarabæo et Scarabæo Aquatico*. The twenty-fourth, *De Gryllotalpa*. The twenty-fifth, *De Phryganea*. The twenty-sixth, *De Tipula*. The twenty-seventh, *De Forficula sive aricularia*. The twenty-eighth, *De Scorpione, Formica, et Pediculis alatis*. And, lastly, the twenty-ninth, *De Cimice Sylvestri*. After these, we arrive at the second book, which treats of apterous insects, (those wanting wings), amongst which he places all sorts of *Larvæ* (or caterpillars) of other species belonging to winged insects, and likewise many of the vermes, &c. We must apologise to the reader for taking up so much of his time with dry statements of the heads of this work; but as it was one of the first produced in this country, we trust he will not consider it as entirely uninteresting; and as a specimen of his style and notions relative to insects, we may quote the following, which speaks of a species of *Mantis*, (probably *M. religiosa* or *Oratoria*): "*Pectus habet longum, tenue, cuculo tectum, caput simplex; oculos sanguineos, satis magnos, antenas breves, pedes sex locustarum more, sed anteriores multo crassiores longioresque cæteris, quos quia junctos plerumque elevat (precautum ritu) a nostratibus*

presque Dieu dici solet: totum corpus macilentum est. Tam divina censetur bestiola, ut pueri interroganti de via, altero pede extenso rectam monstrat, atque raro vel nunquam fallat. Cauda illi bifurca, setaceis duobus aculeis prædita; atque ut nanum elevatione vates refert, ita etiam et motus similitudine; neque enim ludit ut alii, neque saltat, neque gestit; sed lente obambulans modestam retinet et maturam quadam ostendit gravitatem." The work is professedly an improvement on that of Dr Wotton, begun in 1550, continued by Conrad Gesner; and was afterwards enriched and published in its present form by Mouffet.

In 1646, Hollar gained considerable reputation by his work, *Muscarum, Scarabæorum, Vermiumque variaz figuræ et formæ, omnes ad vivum coloribus depictæ et ex collectione arundeliana, &c.* which was published at Antwerp.

In 1657, the *Historia Naturalis* of Johnson, in folio, was published; but as this work is a mere compilation, it is unworthy of further notice; for "he has not added a single remark to what was before known."

In 1658, an English translation of Mouffet's work was published in London by Topsal, chaplain of St Botolph.

Goedart, about this time, published a work in the Dutch language, with plates. This work, considering the time of its appearance, must be considered of considerable merit. It has been translated into Latin, French, German, and English, with copies of the plates. "For the space of twenty years," we are told, "Goedart devoted himself to the study of insects." He followed them through their progressive changes with great precision: this renders his book more extensively acceptable; and his figures, which were never surpassed by his predecessors, are sufficiently correct to be understood. The first edition of this work being sold off, the first volume of a Latin translation, by Dr Mey, minister of Middleburg was produced, under the title of *Metamorphoses et Historia Naturalis Insectorum*, in 1662. Lister allows but little credit to the translators of his works: "Goedart," he observes, "left his writings in Dutch; his translators were men wholly ignorant of natural history, and their comments are mere rhapsodies altogether."

In 1664, a quarto, relating to insects as objects of microscopical investigation, by Power, was published.

In 1665, Hook's *Micrographia* appeared; and, like the former work of Power, treats of minute insects.

In 1666, was published in quarto, *Adami Olearii Gottorffische kunst-kammer. Sleswig.*

In 1667, *Pinax rerum naturalium Britannicarum, continens Vegetabilia, Animalia et Fossilia, in hac insula reperiuntur inchoatus*, by Christopher Merret, M. D. was published in London. This is the first work treating exclusively of the insects of Britain: it contains a brief catalogue of such as were known to Dr Merret, each being accompanied by a concise descriptive sentence by way of name. In the first volume of the *Transactions of the Entomological Society of London*, an account of the insects given by this author, with their systematic names, is given by A. H. Handorth, Esq.

In 1668, Charlton published a work in London, with a systematic arrangement of insects, after the manner of Aldrovandus, entitled, *Onomasticon Zoicon, &c.* 4to.

In 1669, was printed in Dutch, with a Latin title, at Utrecht, *Historia Insectorum Generalis, &c.* by the illustrious Swammerdam. This work was printed in 4to. (and has since undergone several editions, which we shall mention in their proper order), illustrated with thirteen copper-plates. Many years elapsed before the excellence of this work, the admiration of later times, was in any manner acknowledged. It was condemned as inaccurate until the death of its learned and generous author, affording one of the many examples of that culpable spirit which living merit so rarely fails to experience, for labours bestowed for the benefit of an ungrateful world. No sooner was his death announced, than his merits were discovered, and his work was rendered into French by an anonymous translator: this and many other editions soon after followed. The system of this author is interesting; we shall therefore give a short sketch to our readers. He divides insects into four classes, the characters being taken from their metamorphoses and economy. The first undergo no change, and includes *spiders, onisci, &c.* (which are noticed under our article CRUSTACEOLOGY). The second class includes those which, after leaving the egg, appear under the form of the perfect insect, but have no wings; in which state it eats and grows, till, having passed the chrysalis state, it issues thence with wings, and is in a condition capable of propagating its kind. This class comprehends the orders of insects *Orthoptera, Dermaptera, Dictyoptera, Hemiptera, and Neuroptera*, of this work. In the third class, we find those insects which appear when hatched from the egg, under the form of a caterpillar (*Larva*), which when full grown, changes into a chrysalis, where it remains until the parts are fit to be developed. The insects included in this class are the orders, 1. *Coleoptera*, and 2. *Aptera*, (Lamarck); *Suctorias*, (Latreille); whose larvæ divest themselves of their skin before transformation. The fourth class comprehends those who, having attained the pupa (or chrysalis) state, do not divest themselves of their skin. The insects alluded to are the orders *Diptera* and *Hymenoptera* of modern entomologists.

In the same year Wolf's *Dissertatio de Insectis, &c.* appeared at Leipsic. The author was professor of medicine at Jena.

In 1671, Redi published his *Experimenta circa generationem Insectorum*, in which he combats the long-maintained doctrine of equivocal generation with success; proving by experiments and close reasoning, the fallacy of such opinions. At the end of this book he has given figures of the lice of birds.

In 1671, Claude Perrault, one of the most learned exotic entomologists of his age, author of several very ingenious papers in the *Memoirs of the French Academy*, published a folio work at Paris, entitled, *Memoires pour servir à l'Histoire naturelle des Animaux.*

In 1672, Ferrard published a work at Naples, of which we have no account, nor have we met with it.

In 1673, Franzelio submitted his *Insecta Novissolii cum nive delapsa* to the world.

In the same year, at Frankfort, was published by Mollerus, *Meditatio de Insectis quibusdam Hungaricis prodigiis anno proxime præterito, ex ære una cum nive in agros delapsis*, ornamented with wooden cuts.

In 1675, a tract on the natural history of the *Ephemera horaria*, by Swammerdam, appeared, entitled, *Ephemeri Vita of afbeeldingh van 's menschen leven, venioont in de Historie van het uligent ende een-daghevent Haft of Over-aas*.

And in the same year, an elementary tract by George Belerio, printed at Upsal, *περί τῶν ἐρῶντων*.

About the same time, also, by Samuel Bochart, a work entitled, *Hierozoicon, sive bipartitum opus de animalibus Sanctæ Scripturæ*.

In 1676, some additions to Claude Perrault's work were published.

In 1679, Madame Maria Sybilla Merian, *vel* Gräffinn, produced the first part of her work, "*Der Raupen wunderbare verwandlung und sonderbare blumen-nahrung*," which relates principally to European lepidopterous insects. The authoress was a native of Frankfort on the Maine, wife of John Andrew Gräffinn. In early life, she imbibed a taste for the study of insects, from being occupied at times in painting these objects as ornaments to her flower-pieces. The task of painting insects she performed with tolerable accuracy; yet there is "a peculiar exuberance of style incompatible with any faithful resemblance of nature." Many of her original drawings are preserved in the British Museum as specimens of her style.

In 1680 was published, *Johannis Jacobi Wagneri, Historia Naturalis Helvetiæ curiosa*. Figuræ.

In 1681, Grew published his *Museum Regalis Societatis*; being a catalogue and description of the natural and artificial rarities belonging to the Royal Society of London, preserved in Gresham college. London. Folio.

In the same year, an English translation of Swammerdam's *Ephemeri Vita* was produced in London, and a French translation in Paris.

In 1682, a book entitled *Johannes Godartius of Insecte, done into English, and methodised, with the addition of notes, the figures etched in copper by Mr P. Fib*, was published at York. It is supposed to have been translated by Lister; the initials M. L. are at the close of the address "to the reader." The impression, as we learn from the preface, consisted of one hundred and fifty copies, which were intended merely for the curious; and the notes are copious.

In 1682, Hoppis published a dissertation on the *Gryllus migratorius*.

In 1683, the second part of Merian's *Der Raupen*, &c. appeared.

In 1685, the first Latin edition of Swammerdam's work was printed in Lyons, under the title, *Historia Generalis insectorum, Latinam fecit H. C. Hennius*.

In this year also, Lister's Latin edition of Goedart, entitled, *J. Goedartius de Insectis in methodum redactus, cum notularum additione, opere M. Lister*, in octavo, appeared in the Latin language. The author distributes the materials into a new form of arrangement, the merits of which are too obvious not to be considered as an improvement on the original production. He divides them into ten sections, as follow.

1. Those with erect wings, and angulated pupæ. *Butterflies*.

2. Those with their wings placed horizontally, and which proceed from caterpillars, called *geometræ* by Goedart, from their gait. *Moths*.

3. Those with deflexed wings. *Moths*.

4. *Libellulæ*, or dragon flies.

5. *Bees*.

6. *Beetles*.

7. *Grashoppers*.

8. *Dipterous*, or two-winged flies.

9. *Millepedes*. (Now *Crustacea*.)

10. *Spiders*. (Now *Arachnides*.) See the article *CRUSTACEOLOGY*.

Although we readily allow Lister the credit due for this arrangement, yet we cannot avoid expressing our regret for his remarks on the original author, to whom he allows neither credit as a naturalist nor as a writer. He highly praises his skill as a painter; but says, "Goedart, after forty years attention, seems to have made but little advancement in his skill in the nature of insects; he rather seems to have diverted himself, than to have given himself any trouble to understand them; and yet after all, you will find him everywhere just and correct, but in many places short and hardly intelligible." These opinions are delivered in a style of affected superiority over his author, highly unbecoming and not strictly true; and he gained no reputation on the continent for these illiberal remarks, which were much condemned.

Also, by the same author, *Appendix ad historiam animalium Angliæ*. London. Octavo.

In 1687, Leeuwenhoek published his *Anatomia seu interiora rerum, cum animatarum tum inanimatarum, ope et beneficio exquisitissimorum microscoporum detecta*.

In the same year, Geyereus wrote a treatise on the medicinal properties of Spanish flies, (*cantharides*.) under the title, *Tractatus physico-medicus de cantharidibus*.

Also by J. F. Griendel, at Neuremberg, in quarto, *Micrographia Nova*, in which some notice is taken of insects.

In 1688 was published an Italian edition of Redi's *Experimenta circa Generationem Insectorum*, entitled, *Esperienze intorno alla Generazione degl' Insetti*.

In this year also, Stephen Blankaart of Amsterdam, published a work, *Schon Berg der Ruhsen, Wormen, Maden en vliegende Dierkens daar uit voort-kommende*. The author was a physician, who devoted much time to collecting insects. The plates are admirably executed; but the work in other respects bears but an indifferent character. Frisch and Lyonet consider it but a superficial production. It treats of the larvæ of various insects, and a few perfect insects are also noticed. Another edition was published at Leipzig in 1690.

John Cyprien also published at Frankfort, *Historia Animalium*, in the same year, in which insects are noticed.

About this period, two papers on insects appeared, one by John de Muralto, the other by C. Mentzelius.

In 1690, Bilberg published at Upsal a dissertation entitled, *Locustæ*.

And in the same year, König's *Regnum Animale*.

In this year also, Stephanus Blankaart published in octavo, at Leipzig, *Schon-berg der Ruhsen, Wormen, Maden*.

In 1691, *Historia Vermium*, by Jungius, was printed at Hamburg.

In 1692, in the *Memoirs of the French Academy*, we find a curious paper, by Sedilean, entitled, *Observations sur l'origine d'un espeece de Papillon*, (which treats of *Saturnia flavonia major*.)

In 1693, an augmented edition of Swammerdam's *Historia Generalis Insectorum Latinum*, fecit H. C. Hennius, was printed at Utrecht.

In this year, the prodigious ravages occasioned by immense swarms of locusts, which, in the month of August, over-ran Germany, and extended partially through the rest of Europe, even to the northern borders, could not fail to engage the observations of many writers, among whom we find the following naturalists, *De Locustis immenso agmine æren nostrum inflentibus, et quid portendere putentur*, by Hebenstreit; also *Dissertatio de Locutis*, anno frateritio immensa copia in Germania visis, cum diatriba, qua sententia auctoris de *לוצים* defenditur, by Ludolphus. The former of these works is comprised in sixty-five pages, with one plate, from which we learn the species treated of to be *Gryllus migratorius*. The work of Ludolphus is in folio, and consists of eighty-eight pages, embellished with figures. The following authors also published tracts on this subject, namely, Crellius, Kirkmajor, Woollenhaupt, and Treunera, but we are ignorant of the titles of these little dissertations.

In 1694, Albino published a small tract, on the Spanish flies, (*Cantharides*).

In 1695, the *Arcana Naturæ Detectæ*, by Leeuwenhoek, appeared.

And in the same year, a small octavo, Jacobi Petiveri *Muscum*.

In 1699, Hombergh published a paper in the Memoirs of the French Academy, on *Agrión virgo*.

In 1700, was published, in three volumes, duodecimo, *Histoire Naturelle des Insectes selon leurs différentes métamorphoses, observées par Jean Godard*. Amsterdam.

In 1702, James Petiver produced the first decade of his *Gazophylacium naturæ et artis*, which was carried on progressively till about ten years afterwards. It consists of ten decades, which treat of insects, as well as larger animals, fossils, and plants.

In 1705, our celebrated countryman Ray published his work entitled, *Methodus Insectorum, seu in methodum aliqualem digesta*.

In this year also, the entomological part of the work of Rumphius appeared.

In 1707, appeared in London, *A Voyage to the Islands of Madeira, Barbadoes, and Jamaica, with the Natural History*. &c. by Hans Sloane. Folio.

In 1710, Russel published his *Theatrum universale omnium animalium*, which treats of insects.

And the illustrious Ray's *Historia Insectorum*, under the care of Dr Derham, after the author's death, appeared. In this work, he divides insects into two principal classes, such as undergo transformation, and those that do not; and these he subdivides into several orders. He includes amongst these some vermes, which have again been removed by Linnæus, as we shall have occasion to mention hereafter.

In 1717, Wedelio published a tract on the utility of *Cantharides* in the materia medica, in Jena.

And in the same year, J. Petiver, an entomological writer, published a work, *Papilionum Britannia Icones, nomina*, &c. in folio, London, which in its time was certainly a valuable publication to the student of entomology, and even now, as a work of reference, is in high repute.

In 1720, Frisch published his *Beschreibung von Insec-*

ten in Deutschland: the whole work consists of thirteen parts, each being illustrated by three plates.

In this year, Eleazare Albin published in London, *A Natural History of English Insects*, with one hundred copperplates, in one volume quarto.

In 1721, Bradley published in London, *A Philosophical Account of the Works of Nature*, which contains some entomological matter, and also a few engravings of insects, in octavo.

In 1722, *Opera Omnia*, containing all the works of Leeuwenhoek.

In 1725, Sir Hans Sloane published in London, the second volume of his *Natural History of Jamaica*, the second book of which treats of the insects of that island, accompanied by several uncoloured plates.

In 1726, Merian published at the Hague, in large folio, *De generatione et Metamorphosibus Insectorum Surinamensium*; the materials of which were collected by herself, or under her directions, in Surinam, where she spent two years, for the sole purpose of forming a collection, and in taking drawings for this work; which is not, however, entirely devoted to entomology, for besides insects, we find depicted plants, and various reptiles, as toads, lizards, serpents, &c.

In 1730, Valisnieri, in his *Esperienze et Osservazioni intorno agli insetti*, distributes all insects into four classes, from their habitats. The first comprehends those which live on plants; the second, such as live in water; the third, those that live on earth, or amongst stones; and the fourth, those which subsist on other animals.

In 1731, was published in one volume quarto in London, *Insectorum Angliæ Naturalis Historia illustrata Iconibus in centum tabulis æneis eleganter ad vivum expressis*, &c. by Eleazare Albin, and was esteemed an elegant work; but, we must confess, it is more remarkable for gaudiness than fidelity.

In 1731, at London, *Histoire Naturelle de la Caroline, la Floride*, &c. par Marc Catesby, folio.

In 1734, the first volume of Reaumur's *Memoires pour servir à l'Histoire des Insectes*; was published in Paris. The five succeeding volumes appeared between that time and 1742.

In 1734, Alberti Sebæ, *Locupletissimi rerum naturalium Thesauri accurata descriptio, et iconibus artificiosissimis expressio Latine et Gallicè*, tom. iv. folio. The first volume appeared in the above year, the other three before 1765.

In 1735, the illustrious Swedish naturalist Linnæus, published the first edition of his *Systema Naturæ, sive Regna tria Naturæ Systematice proposita per classes, ordines, genera et species*, in which work he distributes insects into four orders, according to the number and form of their wings, under the names, 1. *Coleoptera*; 2. *Angioptera*; 3. *Hemiptera*; 4. *Aptera*. In the first, are contained those whose wings are covered; the second, those with naked or uncovered wings, as butterflies, dragon flies, ephemeræ, &c.; the third, locusts, bugs, &c.; the fourth, those without wings, as lobsters, spiders, lice, &c. Besides these, several animals, which, in later editions of the work, Linnæus considered as vermes, were included. These were the earth-worm (*Lumbricus*), the leech (*Hirudo*), all land and sea shells, and starfish (*Asterias*), sea-egg (*Echinus*), &c.; and in this arrangement he by no means deviated from the received opinions of his time. In the subsequent editions of his

work, these orders are divided, and the *vermes* are separated; and, after the manner of Aristotle, are considered as forming another class. His final arrangements we shall notice when speaking of his last (12th) edition. See the year 1767. And in the same year at Upsal, *Acta Literaria Scientiarum Sueciae*.

In 1736, all the works of Swammerdam were put to press, entitled *Biblia Naturæ, sive Historia Insectorum Belgicæ, cum versione Latina, H. D. Gaubii, et vita auctoris*, per H. Boerhaave. The first volume appeared in 1737, and the second in the year following.

In 1738, Lesser published a work, entitled, *F. C. Lessers Insecto-Theologia, oder Vernunft- und Schriftmässiger Versuch wie ein mensch durch aufmerksame Betrachtung derer sonst wenig geachteten Insecten*, &c. Frankfurt and Leipzig, in octavo. This work has never come under our inspection. We have, however, noticed a French translation, which appeared in 1742, at some length.

In 1739, Linné produced two entomological tracts, entitled, *Om Renarus Brömskulor i Lapland*; the other dated Stockholm, *Tal om Märkwärldighet uti Insecterne*.

Also at Stockholm, in octavo, *Acta Holmenstæ, Svenska Vetenskaps Academiens Handlingar*.

And *Kongl. Svenska Vetenskaps Academiens Handlingar*. Stockholm, in octavo.

In 1740, the folio work of L'Admiral, entitled, *Naaukeurige Waarneemingen van Gestaltverwisselende gekorwen Dierjes*, was published at Amsterdam. It contains a series of highly finished etchings, which are distinctly copied by Harris in his *Auricularia*. This work is confined to the insects of Europe, and contains figures of about fifty of the larger species, principally of lepidoptera, which are represented in various attitudes, with large branches of the plants on which they feed, generally accompanied with their larva and pupa. It began in numbers, and was intended to contain one hundred plates, and four hundred pages of letter-press, but the work was discontinued. Most copies of the work contain twenty-five plates, and five pages of print; but Mr Donovan's copy, which is the most complete that we have seen, contains thirty-two plates, and twenty pages.

In 1741, Schæffer published a valuable work, under the title, *Icones Insectorum circa Ratisbonam Indigenarum*, in three volumes quarto, with a vast number of coloured plates. The classification of this author differs extremely from that of Linnæus, and approaches that proposed by Geoffroy, yet it is so far distinct, that being a system of considerable repute, it may not be amiss to present an outline of it in this place. He divides insects into seven orders, which he terms classes:

1. *Insecta Coleoptero-macroptera*, those with their elytra crustaceous throughout their whole length, and extending beyond the abdomen when closed.
2. *Insecta Coleoptero-microptera*, those with crustaceous elytra shorter than the abdomen.
3. *Insecta Coleoptero-hymenoptera*, such as have their elytra half crustaceous, or becoming membranaceous towards their extremities.
4. *Insecta Hymeno-lepidoptera*, insects having transparent or membranaceous wings, imbricated with scales.
5. *Insecta Hymeno-gymnoptera*, those with naked membranaceous wings.
6. *Insecta Diptera*, or insects with two wings.
7. *Insecta Aptera*, or those without wings.

In 1742, a French work, being a translation of Les-

ser's *Insecto-Theologia*, with remarks by Lyonnet, entitled, *Théologie des Insectes, ou Demonstration des Perfections de Dieu dans tout ce qui concerne les Insectes*. Traduit de L'Allemand de Mr Lesser, avec des remarques de Mr Lyonnet, a la Haye, octavo, appeared. The original work we have never seen; it appeared in 1738. The views of the author are to promote the glory of God; nor did he in any degree attempt to establish any new facts relative to entomology, but directed his attention to the collection of such anecdotes relative to the natural history of insects, as could be rendered a convenient medium for the theological remarks with which his pages abound. To the entomologist the work is of no use; for his knowledge was but limited, and his remarks often erroneous. As a theological production, however, it may have an useful tendency, as it is calculated to expose the glaring errors of others, who, with a fanatic spirit, had entered on the same subject. One of the best chapters relates to the abuse of insects in theology. He says, the Jews are accused of stating many wonderful things relative to insects, which can only be considered as fables. Amongst many instances, after repeating the text, Kings i. 6, 7, concerning the erection of the temple, ("And the house, when it was in building, was built of stone, made ready before it was brought thither: so that there was neither hammer nor ax, nor any tool of iron heard in the house, whilst it was building,") he states, that the Jews explain this passage in the following manner: The workmen (they say) employed a worm to shape the stones; which insect, named *Schamir*, cut and broke them to pieces in places, where applied. They add, that it was "figured like unto a grain of barley," and was kept in a leaden box, "because had it reached rocks, it would have cleft them, so as to unfit them for use." This fable, with many others equally absurd, invented by the rabbis, is particularly mentioned. Amongst the legends of Catholic superstition, too, he selects several anecdotes equally fraught with folly, which, if really believed in the time of Lesser, will excuse him (he being a divine) for applying his time to the exposure of such gross absurdities. Two of these anecdotes we shall take the liberty of inserting. Baldus relates, that a number of bees accidentally passing over holy ground, paid it homage, and carried a portion respectfully to their hive; and it is stated that St Francis, when walking in his garden, saw a grasshopper, which immediately pitched on his hand, and, at his command, sung psalms and praises to God.

Detharding also, this year, published a *Disquisitio physica Vermium in Norvegia qui nova visi*, in quarto. It is a small treatise, relating to the larvæ of *Phalæna*, or moths.

In 1743, George Edwards published the first volume of his *Natural History of uncommon Birds, and of some other rare and undescribed animals*. London, quarto. The other volumes appeared before 1752, in which several insects are given.

In 1744, at Stockholm, was published by Degeer, an interesting little work in octavo, on the utility of studying insects, entitled, *Tal om nytlan, som Insecterna och deras sharshadande, tilskynda oss*, pointing out the advantages of cultivating the natural history of those animals, and, as far as we know, is the oldest work on this subject.

In 1745, *Ejusdem Olandska och Gothländska Resa förrättad år, 1741*. Stockholm och Upsala, 1745, one small volume octavo, by Linné.

In 1746, *Der monatlich-herausgegebenen Insecten-Be-*

lustigung, by Rösel of Nuremberg, a man of genius, by profession a miniature painter. The work is in quarto. Two other volumes appeared in 1749 and 1755. To these a fourth volume was added by a relation (Kleemann) after his death in 1761; and, since that period, Kleemann has published three other parts.

In 1747, a tract, explaining the advantages arising from the study of insects, entitled *Dissertatio de Usu Cognitionis Insectorum*, was published by C. F. Menander.

In the same year, William Gould published in London, *An account of English Ants*.

Also in Paris by Bazin, *Abrégé de l'Histoire des Insectes, pour servir de suite à l'Histoire Naturelle des Abeilles*.

In this year also was published in quarto, Adrian Gadd *Observationes Physico-Economicæ, in septentrionali frætura territorii superioris Satagundie collectæ. Dissertatio Præside. C. F. Menander, Aboæ*; an interesting tract, explaining the advantages arising from the study of natural history.

In this year, *Theologie des Insectes* de Lessert, avec des remarques de Lyonnet, à la Haye, in two volumes octavo, appeared, being a translation, with comments by Lyonnet, of Lessert's *Insecto-Theologia*, published in 1738.

Also Buzin Gilles Augustin *Abrégé de l'Histoire des Insectes pour servir de suite à l'Histoire Naturelle des Abeilles*. Paris, in two volumes duodecimo.

In 1748, was published in London, by J. Dufield, six numbers of a natural history of English moths and butterflies.

And, in this year, T. C. Hoppe published two small entomological tracts, as *Antwort-Schreiben auf Herrn Schreibers zweyfelt*, and *Eichen-Weiden und Dorrosen*. The first at Gera; the second at Leipsic.

In 1749, Linné published *Ejusdem Skånsa Resa*.

And at Norembergh, J. M. Seligmann *Aves, adjectis ex G. Edwardi Iconibus*. Folio.

In the same year, or perhaps earlier, the splendid work of Benjamin Wilks, under the title of *The English Moths and Butterflies, together with the Plants on which they feed, and are usually found*. The plates, which appeared first, bear no date. In the third volume of Rösel's work, *Insecten Belustigung*, we find comments on this work, not to the credit of English entomologists in general, when the science ought, from the labours of former writers, to have stood on very high ground in this country, and the public judgment to have been so far matured as to discover imposition. Rösel, in the plainest terms, accuses our author of piracy; and, when we reflect on the celebrity this work has heretofore enjoyed as an original production, it certainly attaches some little reproach to our naturalists, that facts, so publicly asserted on the continent, should have remained unknown to us. As the remarks are curious and interesting, we shall copy this part, translated by a friend. "In the supplement, or third part of my amusements of insects, I have mentioned a certain work which Mr Wilks in London continues monthly, and promised that I should take some opportunity of giving a more circumstantial account. Since then the plates amount to ninety, all of which I have examined with great attention. They are as yet destitute of any description, which is, however, promised at some future period. In the notice to these plates; he professes to have drawn them from life; but, by those acquainted with other works, it will readily be discovered that several are taken from Albin's work, from Merian's book,

and many from my own. How far he has succeeded, I leave to the judgment of others. An ape mimics every thing, but does not always succeed. I may appear to many too severe; but let them consider that he counterfeits the works of others, and gives them for his own. I venture to assert, that in the future description of his work, he will be careful not to mention the authors whose works he has so unjustly robbed; for he already strives, to conceal on his plates what he has copied from others, by reversing the figures, or by giving them a different position." Vol. iii. p. 192. 1749. The substance of these remarks we are sorry to be under the necessity of allowing to be true; for the eye of the artist will perceive, on comparing the two publications, that Wilks has taken an unlimited range through the first volume of Rösel. We have repeated the remarks of Rösel at length, because we wish to impress on the public mind the value and importance of any general work, in preference to productions of this nature. Wilks was also publisher of *Twelve new designs of Butterflies*, in which the insects are disposed in stars, festoons, circles, or other whimsical groups, forming what are usually denominated "butterfly pictures." The nature of the first work above mentioned, is rather incorrectly stated in the title-page; for the plants on which the insects are grouped, are not those which furnish their natural food; they consist of gaudy flowers, auriculas, roses, monstrous varieties of cultured plants, fruits, &c. the introduction of which, in preference to their natural food, has incurred considerable censure.

In 1752, Dr Hill, in his *History of Animals*, published in London in the year 1752, divides insects into three classes: the first *Apteria*, includes all insects without wings; the second *Pteraria*, is devoted to the winged insects; the third *Gymnanthridia*, comprehends those with soft and naked bodies.

De Geer also in this year, published the first volume of his invaluable work, *Memoires pour servir à l'Histoire des Insectes*, at Stockholm, which was received with every demonstration of praise to which its merits are entitled. From the testimony of the author's merit afforded by this volume, the continuation was expected with impatience; but nine years elapsed before the second volume appeared, and it was altogether twenty-six years from its commencement to its termination. It was completed in 1778, in which year the labours of its author closed with his life. He was author of several papers in various Transactions, which we shall notice in their proper place.

In this year also, Linné published two dissertations at Upsal, *Miracula Insectorum*, and *Noxa Insectorum*. The latter of these is very valuable, from the object in the contemplation of the author; and the first is not destitute of merit.

Scopoli, in the year 1753, published his *Entomologia Carniolica*, in which he distributes all the insects of which he treats, into orders, genera, species, and varieties, nearly after the manner of Linné. As a systematic work, this publication is of little importance; in other respects it is valuable.

In this year also, *Novæ Insectorum Species. Diss. Præsid. Johanne Lecher. Resp. Isaacus Uddman. Aboæ*, quarto.

In the year 1754, Kalm, a learned botanist, published a paper on a species of *Cicada*, in the Swedish language; but we are unacquainted with its title.

In 1756, in folio, Brown's *Civil and Natural History of Jamaica*.

In 1757, F. Hasselquist's *Iter Palæstinum, eller Resa*

still *Heliga Landet* aren 1749—1752, *Utgiver af Car. Linné*, appeared at Stockholm.

In 1753, in quarto, an interesting work in its day, entitled, *Ejusdem Dissertatio. Centuria Insectorum rariorum, &c.* Upsaliæ.

In this year, an English translation of one of the works of Swammerdam was published in London by Thomas Fleoyd.

And in 1759, J. C. D. Schreberi *Novæ Species Insectorum*, appeared at Halle.

In 1759, Caroli Linnæi *Animalium Specierum, &c.* in formam enchiridii, Lugd. Bat. Octavo.

In 1760, Caroli a Linné *Amenitates Academicæ*, tom. v. Holmiæ, octavo.

In 1761, Linné published his *Fundamenta Entomologiæ*, being an introduction to the study of the science.

In this year likewise, an interesting little work, entitled, *Insecta Musci Græcensis*, was given to the world by Nicolaus Poda, giving an account of the insects of Greece, arranged after the Linnæan manner.

J. H. Sulzer, in the same year, produced an introductory work to the study of insects, in quarto, illustrated by several plates, under the title, *Die Kennzeichen der Insekten nach Anleitung der Ritters, Karl Linnæus, durch 24 kuffertafeln erläutert, und mit derselben natürlichen geschichte begleitet*. Printed at Zurich.

And a new edition of Linné's *Fauna Suecica editio altera auctior*, Stockholmæ, considerably enlarged and improved, appeared.

In the same year with the above, an octavo, *Det Trondjemske og Norske Videnskabers Selskabs Skivter*.

Also Bruniche Martinus Thranæ. *Prodromus Insectologie Siælandicæ*. Hafniæ, octavo.

In 1762, *Histoire abrégée des Insectes aux Environs de Paris*, octavo.

In the same year, Sepp began his work, *Beschouaring per wondern gods in de minstgeachte schefzelen of nederlandsche Insecten*, which is entirely dedicated to the more rare butterflies and moths of Holland. The text is in the Dutch language; and the plates, which are very numerous, are admired for their peculiar neatness, being engraven in the dot or stipple style with considerable delicacy and elegance.

In this year, a most valuable systematic work by Geoffroy, was published in Paris, and demands the attention of the modern entomologist. It is entitled, *Histoire abrégée des Insectes*, and divides insects into six classes: 1. *Coleopteres*; 2. *Hemipteres*; 3. *Tetrapteres à ailes nues*; 4. *Tetrapteres à ailes farineuses*; 5. *Dipteres*; and 6. *Apteres*. The first is the same with the Linnæan order *Coleoptera*; the second is regulated by the form of the proboscis; the third agrees with the *Lepidoptera*; the fourth comprehends the *Neuroptera* and *Hymenoptera*; the fifth and sixth are the same with the Linnæan orders *Diptera* and *Aptera*. The characters of these orders are taken from the number of joints in the feet; and the generic characters are taken from various parts of the body. Many of the genera are perfectly natural, and are still in use.

Brünniche, in this or the following year, published two entomological tracts, *Prodromus Insectologie Siælandicæ*, and *Entomologia sistens Insectorum tabulas systematicas cum introductione et iconibus*. The latter is an elementary work in the Latin and Dutch languages.

In 1763, L. T. Gronovius published in folio, *Gronovii Zoophylactii*. Three fasciculi only appeared.

Also Johannis Antonii Scopoli *Entomologia Carniolica, &c.* Vindebonæ, in octavo.

In this year, *Den Danske Atlas ued Eric Pontoppidan*, Kiøbenhavn, appeared in quarto. Other parts appeared in the years 1764 and 1767, forming altogether three volumes in quarto.

In 1764, Dr M. Geoffroy published in two volumes quarto, *Histoire abrégée des Insectes, dans laquelle ces Animaux sont rangés suivant un ordre methodique*. Paris.

Linné in this year, again appeared before the public, and produced his excellent *Ejusdem Museum Lodoovicæ Ulricæ Reginæ*. Holmiæ, in octavo.

Also Otho Fr. Müller *Fauna Insectorum Fridrichsdalini, sive methodica descriptio Insectorum agri Fridrichsdalensis, &c.* Hafniæ et Lipsiæ, octavo.

Also J. C. Schæffer's *Abhandlungen von Insecten*. 3 Bande. Regensburg, quarto.

Also the second part of *Zoophylactium Gronovianum*, by Laurentius Theodorus Gronovius, containing descriptions of about six hundred insects, with synonyms after the Linnæan system, accompanied by four illustrative plates, was printed at Leyden in folio.

In 1765, Seba's *Thesaurus Naturæ* was published at Amsterdam, in which a vast number of the extra European insects are figured in a very coarse style.

In this year J. G. Gleditsch published at Halle, in 8vo. the first volume of *Vermischte Physikalisch Botanisch Oeconomische Abhandlungen*; two other volumes appeared in the two succeeding years.

Also at Copenhagen and Haniburg, Eric Pontoppidan's *Kurygefaste Nachrichten, die Naturhistoire in Dännemærk betreffend*.

Also *Det Kiøbenhavnske Selskabs Skivter*, at Kiøbenb.

In 1766, Schæffer published at Regensburg *Elementa Entomologia*, containing 132 plates, illustrating the principles of his system, and an additional section with two plates, describing the manner of catching insects, and the manner of feeding them, with microscopes, &c. for examining them. He was author of another work on this subject, in the German language, entitled, *Zweifeln und Schwürigkeiten, welches in der Insectenlehre an noch vorwalten*, published at Regensburg in 4to, but we are ignorant of the date.

In this year, also, a second edition of Frisch's work appeared.

In 1767, Pallas published at Berlin, in 4to, the first fasciculus of his *Spicilegia Zoologica quibus nova informis et obscuræ animalium species Iconibus, descriptionibus atque commentariis illustrantur*, a very valuable work. Several other numbers or fasciculi were published before the year 1780, when the last made its appearance.

And in the same year, the twelfth edition of the *Systema Naturæ* of Linné was produced. As this was the last work of that illustrious naturalist, we shall lay before our readers his entomological arrangement. He divided insects into seven orders, deducing his characters from their wings, as follow:

Order I. *COLEOPTERA*, (from *κόλες*, a sheath, and *πτερόν*, a wing,) including those insects having crustaceous shells or elytra, which shut together and form a longitudinal suture down the back of the insect. In many the whole body (abdomen) is covered by these elytra, in others partially. The coleopterous insects comprehend those commonly termed beetles.

Order II. *HEMIPTERA*, (from *ἡμισ*, half, and *πτερόν*, a wing.) These animals have their upper wings half crustaceous, and half membranaceous, or of a matter intermediate between leather and membrane. Examples, the bug, the locust, &c.

Order III. LEPIDOPTERA, (from *λεπίς*, a scale, and *πτερόν*, a wing.) Insects having four wings imbricated with scales. *Examples*, butterflies and moths.

Order IV. NEUROPTERA, (from *νῆρον*, a nerve, and *πτερόν*, a wing.) Insects having four transparent naked wings, reticulated with veins or nerves. *Examples*, libellulæ, or dragon-flies, &c.

Order V. HYMENOPTERA, (from *ὑμῆν*, a membrane, and *πτερόν*, a wing.) Insects with four naked and membranaceous wings. *Examples*, bee, wasp, &c.

Order VI. DIPTERA, (from *δύο*, two, and *πτερόν*, a wing.) Insects with two wings, as gnats, flies, gadflies, &c.

Order VII. APTEA, (from *ἀ*, without, and *πτερόν*, a wing.) Includes all insects without wings, as spiders,* crabs, lice, &c.

The great perspicuity of Linnæus's System of Entomology, arose from its author having made choice of the most obvious characters which insects afford for the leading distinctions of his orders. In the construction of his genera, he has taken his characters from the parts of the head alone, paying particular attention to the form, situation, and structure of the antennæ or horns; these parts being conspicuous in most insects, and so infinitely varied in their appearance, as to constitute, with few exceptions, a permanent distinction. That there are other characters which, in the opinion of later entomologists, are better adapted to the purpose of classification, the reader must be aware; but these, although really preferable, are perhaps too minute to become always useful to the student; yet to the man of science, who is really willing to learn and study entomology as a science, there can be no doubt as to the superiority of the modern systems, although we are ready to allow that the characters from the mouth are not so well calculated to further the views of the superficial observer, as those proposed by Linné; the simplicity of his arrangement, the celebrity of his name, and the princely patronage under which he wrote, conspired, with other favourable circumstances, to render the science more universally cultivated, admired, and respected, about his time, than it appears to have been at any former period. Much credit is undoubtedly due to this great man for his entomological labours; but as we have stated before, when speaking of Aristotle, he is not alone entitled to our commendation for the arrangement he has proposed; we must acknowledge the merits of his predecessors, who wrote under less favourable circumstances, but nevertheless excelled in this department of science; men to whom Linné stands in a very high degree indebted, and without the aid of which it is impossible to imagine the system which now commands our respect. In the works of Aristotle and Pliny, in those of Aldrovandus, Swammerdam, Ray, Willoughby, Lister, and various others, (whose works we have noticed), we perceive, with some variations, the grand outline on which he has formed his system. It was from these valuable sources that he gained the materials from which he selected, with profound judgment, and the greatest success, the valuable matter, carefully and industriously separating the dross. The characters of his orders and genera also are to be found in several earlier publications, as are descriptions of several of the species. But he has concentrated these scattered rays of science with so much skill and industry, that we must admit that to him alone the science is indebted for that firm foundation on which it now rests. His style throughout is concise and expressive, but in many instances it is

so laconic, that it is impossible even to guess at the animals described.

In 1768, was published in Paris, Bomare *Dictionnaire raisonné universel d' Histoire Naturelle*, 4to.

In 1769, in three volumes 4to. *Ejusdem Icones Insectorum circa Ratisbonam Indigenorum*, &c. Regensburg, by Schæffer.

And in the same year, at Leipsic, was published, in octavo, J. A. Scopoli *Ann. Historico Naturalis*.

Also Dr John Berkenhout, M. D. published the first edition of his *Outlines of the Natural History of Great Britain*. That portion containing insects is very limited, treating of no more than six hundred species, which are arranged after the Linnæan system. Notwithstanding the small number of species enumerated, this little work has tended materially to advance the study of entomology in Great Britain. Since the publication of the above, three or four other editions have appeared.

In 1770, J. R. Forster published, at Warrington, in octavo, *A Catalogue of British Insects*, a mere list of Latin names, amounting to about 1000 species, the greatest number hitherto enumerated. This was intended as a Prodromus to a general work on the insects of Britain, as we learn from the preface, in which the author offers duplicates in exchange for any not in his collection.

In this year also, D. Drury published a very beautiful work in one volume, containing comprehensive descriptions in English and French, with an index of Linnæan names, illustrated by coloured copperplates, entitled, *Illustrations of Natural History, wherein are exhibited Figures of exotic Insects*, &c. The plates form a miscellaneous assemblage of the more beautiful extra European insects, which the extensive collection of its author afforded. Three years after the publication of the first volume, a second appeared; and the third, which concludes the work as far as it proceeded, appeared in 1782. Besides those figured and described in the three volumes published, the extensive cabinet of Mr Drury contained many choice specimens, reserved as materials for a fourth volume, amongst which were a vast number of curious species, collected in the interior of Africa, and other parts of the world, rarely visited by Europeans, the introduction of which would have rendered this volume, (which was never published), of much greater interest to entomologists in general, than either of the preceding. We may observe, that Mr Drury's cabinet was one of the most extensive ever made, and is said to have contained in species and varieties, no less than 11,000 insects, (in his time the largest collection,) which he obtained by transmitting printed directions and instructions, in various languages, for gathering and preserving insects, offering sixpence an insect for all insects, "from the size of a honey-bee upwards." His museum of entomology was disposed of, in London, by public auction, and produced about six hundred pounds. One insect, viz. *Scarabeus Goliathus*, (*Goliathus magnus*), was purchased by Mr Donovan, for twelve guineas and a half, who obtained also all the British insects, (which were very numerous,) collected by Mr Drury, and now enrich his splendid museum.

And in this year also, G. A. Harter's *Beschreibung derjenigen Insecten welche Herr D. J. Christoph. Schæffer in cclxxx ausgemachten kuffertafeln herausgegeben hat*. Regensburg, octavo.

In 1771, John Reinhold Forster published *Novæ*

* The crabs and spiders are now considered as constituting two distinct classes. See our article CRUSTACEOLOGY.

species Insectorum centuria, 1; the avowed purpose of which, as the reader is informed in the preface, was to give descriptions of one hundred insects, not mentioned in the latest work of the illustrious Linné. The insects included are partly indigenous; some are from China, and others from South America. The greater number of these are coleopterous insects, and are arranged after the manner of Linné, except the genera *anthribus* and *cistela*, which are taken from Geoffroy. We may observe many of the insects seem to have been unknown to Linné, and some few were previously made known to the world, by the works of Schæffer and Drury. This the author was aware of; but as they had escaped the observation of Linné, whose work he was solicitous to improve, it was considered right to introduce them. He was one of those eminent naturalists who accompanied the celebrated Captain Cook in his voyage round the world, and his labours as an entomologist in those times entitled him to respect.

The *Mantissa Plantarum altera generum editionis vi. et Specierum editionis ii.* Holmiæ, of Linné, in which several insects, not noticed in other parts of his works, are described, octavo, appeared in this year.

In 1772, Curtis published in London a translation of the *Fundamenta Entomologiæ* of Linné, which considerably advanced the study in this country.

And in the same year, Dr John Coakley Lettsome, published in octavo, *The Naturalists and Travellers Companion*, giving directions how to collect and preserve all sorts of natural productions. It has since undergone several editions, and may be considered as a very useful book to students of entomology.

Also M. Th. Brunnichii *Zoologiæ Fundamenta prælectionibus academicis accommodata*, Hafniæ et Lipsiæ, octavo. In 1773, Kahn published a tract relative to the mode of preserving and catching insects, entitled *Kurze anleitung Insecten zu sammeln*.

Thomas Pattinson Yeats published *Institutions of Entomology*; a useful work, being a translation of the Linnean orders and genera, collated with three other systems, namely, those of Geoffroy, Scopoli, and Schæffer, together with many ingenious observations, by its translator. It is particularly defective, however, in the comparison drawn between the systems of Linné and Scopoli, from an event which could not be anticipated. When Scopoli published his *Entomologia Carniolica*, he coincided very nearly with Linné, in his arrangement; but in a work of his, (soon to be noticed,) he abandoned that method, and adopted another. For an account of the system alluded to, see the year 1777.

In this year, the account of a tour made by the celebrated Russian naturalist Pallas, appeared, entitled, *P. S. Pallas Reise durch Verschiedene Provinzen des Russischen Reichs, St Petersburg*, which has been rendered into Latin and English.

In this year also, Dr John Hill published a *Decade of curious Insects*, some of them not described before, shown in their natural size, and as they appeared before the Lucernal Microscope, in which the Apparatus was artificially illuminated; with their History, &c.: illustrated with ten quarto plates, in which the figures are sometimes immensely magnified, and far from correct. The scientific accounts are given in English, accompanied with various interesting observations as to their natural history and economy.

In the *Transactions of the Entomological Society of London*, vol. i. part 1. the work of Benjamin Wilks is

stated to have been published in this year, but is noticed by us as having been published in the year 1749, or earlier: but, from the comments made on that work by Röscl, it must have been published, as we have stated, in or before 1749.

In 1774 was published at Amsterdam, in folio, by Jacob L'Admiral, *Veranderingen van Veele Insecten*.

Also, at Halle, in 8vo. *Der Naturforscher*, but the author's name not known to us.

And, in this year, Iwan Lepechius *Tagebuch der Reise durch verschiedene Provinzen der Russischen Reichs*; Altenburg. One volume appeared first, and two others before 1783.

In 1775, an interesting little work, describing the insects of Switzerland, under the title *Verzeichniss der ihm Bekanten Schweizerischen Insecten*, was printed at Zurich, in quarto, by Joh. Gaspar Faeslin.

In this year, J. C. Fabricius, a pupil of Linné, published a new system of Entomology, under the title *Systema Entomologiæ*, in which the principles of a new mode of classification is for the first time developed. He has taken the essential characters of the classes, (orders, Linné would have termed them) from the parts of the mouth (*Instrumenta cibaria*), which has given this the title of *Cibarian System*. He, in this work, divides insects into eight classes, viz. Eleutherata, Ulonata, Synistata, Agonata, Unogata, Glossata, Rhyngota, and Antliata. In this part of his system he has been followed by very few; but his mode of distinguishing the genera is still retained, and opens the way to the knowledge of natural genera, which, by his method, are generally to be distinguished without examination of any other parts. As he has since that time written several other works, and added considerably to this system, we shall defer noticing it further for the present. We may, however, observe, that he gained such reputation from this work, that he was induced to prosecute his entomological studies with increased ardour, and during his lifetime always held the highest rank as an entomologist.

Also, *Descriptions Animalium, Avium, Amphibiörum, Piscium, Insectorum, Vermium*; quæ in Itinere Orientali observavit, Petrus Forskal, Prof. Harn, *Post mortem Auctoris*, edidit Carsten Niebuhr; Havniæ, quarto.

Moses Harris also published a little pamphlet, entitled, *The English Lepidoptera, or Aurelian's Pocket Companion*, &c. London; an alphabetical catalogue of the larger lepidoptera, collected by its author in England. This little tract, although apparently insignificant, has materially contributed to the practical study of entomology. The Linnean names, as far as they were known to him, with the time and place of the appearance of the insects, in both states, are concisely given in columns. A frontispiece is added, explaining the terms used in the description of animals of this order.

In 1776, Peter Brown figured a number of insects in his *New Illustrations of Zoology*.

In this year, Sulzer published, in quarto, *Abgekürzte Geschichte der Insecten*, Winterthur.

The *Genera Insectorum* of Fabricius appeared in this year.

In this year, also, J. H. Sulzer's *Abgekürzte Geschichte der Insecten*, 2 Theile, quarto.

Also, *Beiträge zur Naturgeschichte von Franz*, von Paula Schrank, Leipzig, in octavo.

In this year, O. F. Müller *Zoologiæ Danicæ Prodromus*, &c. Hafniæ, appeared in octavo, and must ever be considered a most valuable and useful work.

In this year was published at Halle, in octavo, the first part of a work entitled, Joh. Schröter *Abhandlungen über verschiedene Gegenstände der Naturgeschichte*; a succeeding part appeared in 1777.

A valuable book in quarto, entitled, *Systematisches Verzeichniß der Schmetterlinge der Wienergegend*, &c. Wien, appeared in this year.

In 1777, Scopoli published the systematic work before alluded to, under the title, *Introductio ad Historiam Naturalem*. In this work (which does not relate exclusively to the science of entomology), he divides insects into five tribes, under the singular appellations of *Swammerdami-lucifuga*, *Geoffroy-gymnoptera*, *Röschli-lepidoptera*, *Reaumurii-probosceida*, and *Frischii-coleoptera*. In this manner he identifies each tribe with the name of that author who has, in his opinion, been most successful in the explanation of that to which his name is attached. The order *Lucifuga* includes two genera, 1. *Crustacea*, 2. *Pedicularia*. *Gymnoptera* comprehends his *Halterata*, *Aculeata*, and *Caudata*. *Lepidoptera*, the genera *Sphinx*, *Phalæna*, and *Papilio*. *Proboscidea*, he divides into *terrestrial* and *aquatic*. And the *Coleoptera* he divides likewise into those inhabiting water, and those the land.

In this fertile year, J. A. E. Göze began to publish an extensive systematic work, called *Entomologische beyträge zu des Ritters Linné zwölften Ausgabe des Natur Systems*, &c. which was continued progressively in parts till 1783, in octavo.

Esper also produced in Germany the first part of his valuable work on lepidopterous insects, entitled, *Die Schmetterling in Abbildung nach der Natur mit Beschreibungen*, accompanied by many plates, of which a second part was published in 1779. Between that time and 1786, two other parts appeared likewise, and which, altogether, form a very extensive publication.

In 1778, at Berlin, was published in quarto, by Peter Simon Pallas, *Naturgeschichte Merkwürdigen Thiere, in welcher Vornehmlich neue und unbekannte Thierarten durch kufserstriche, Beschreibungen und Erklärungen erläutert werden*.

And Paul Czempinsky published, in octavo, *Totius Regni Animalis Genera*.

Also, in quarto, *Nomenclatur und Beschreibung der Insecten in der Grafschaft Hanau-Münzenberg*, von Joh. And. Ben. Bergstrasser.

Also, *Magazin für die Liebhaber der Entomologie Herausgegeben*, von Jos. Casp. Fuesly, Zurich and Winterthur.

And, in this year, at Leipsic, in octavo, was published, *Versuch einer Naturgeschichte vom Livland*, entworfen von J. I. Fischer.

Moses Harris also published his *Aurelian, or Natural History of English Insects*, namely, *Moths and Butterflies*, London, in quarto.

Lastly, J. C. Fabricii *Philosophia Entomologica*, &c. a work to be studied by every scientific entomologist.

In 1779, Pieter Cramer published, *De vit Landsche kaphellen, Voorkomende in de drie Waereld deelen Asia, Africa, en America*, or extra European insects, which, with the continuation published in the year 1782, consists of four volumes quarto, with many plates, confined entirely to lepidopterous insects.

And, in the same year, another very expensive work, in the French language, named *Papillons d'Europe, peints d'après Nature*, which, as its title shews, is devoted entirely to the lepidopterous insects.

In 1779, was published, in octavo, *Anfangs-gründe der Naturgeschichte*, von Nath. Gottf. Leske. Leipzig.

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In 1780, in Berlin, was published, in octavo, *Schriften der Berlinischen Gesellschaft Naturforschenden Freunde*.

Also, Otho Fabricii *Fauna Grælandica*, &c. Hafniae et Lipsiæ; a valuable little work, in one volume octavo.

In 1781, was published, in London, by James Barbut, an elementary work, *The Genera Insectorum of Linnæus, exemplified by various Specimens of English Insects*. As an illustration of the Linnæan system; this work may be not uninteresting to the English reader, but its views are too limited to admit of even mere general utility. Its author does not seem to have been aware of the vast improvements the science had undergone on the Continent, in the interval between the publication of the *Genera Insectorum of Linné*, and the time in which he wrote; and has therefore drawn no comparisons between them, which, without innovation, must have placed the science in a more lucid point of view. It is to the silence of English writers in this respect, arising either from want of information, from sentiments of illiberality, from jealousy, or negligence, that we must ascribe the very low state of entomological knowledge in Britain, even to the present period.

In the same year, Francisus Paula Schrank distinguished himself by his enumeration of the insects of Austria, called *Enumeratio Insectorum Austriae Indigenorum*, which has since been rendered into German by Fuesly.

Johann Nepomuk von Laicharting, in this year, published at Zurich, the first part of his catalogue of the insects of the Tyrol, *Verzeichniß und Beschreibung der Tyroler Insecten*; a second part appeared in 1784. He adopts a system distinct from that of Linné. Insects by him are divided into ten classes or orders, characterised from various parts of the body. These orders are named, *Scarabæoides*, *Grylloides*, *Cimicoides*, *Papilionoides*, *Libelluloides*, *Vespidæ*, *Muscoides*, *Canceroides*, *Aranoides*, and *Oniscoides*.

In this year, the *Icones Insectorum præsertim Rossicæ, Sibericæque, peculiarium, quæ Collegit et Descriptionibus illustravit*, Petrus Simon Pallas, M. D. Erlangia, appeared in one volume quarto.

And Herbst published *Archiv der Insectengeschichte, Herausgegeben von Jos. Caspar Fuesly*; Zurich and Winterthur. In quarto.

In this year, Nicolas Joseph Jacquin published in quarto, *Miscellanea Austriaca, ad Botanicam, Chemiam et Historiam Naturalem*.

Also the *Genera Insectorum of Linnæus*, &c. by James Barbut; London, quarto, another edition.

And Thunberg published at Upsal, *Ejusdem Museum Naturalium Academia Upsalensis &c. Pars 1*; to which twenty other parts, and an appendix, were added before the year 1800.

Also, *Beiträge zur Insectengeschichte von August*, &c. Wilhelm Knoch; Leipzig, octavo.

And J. C. Fabricii *Species Insectorum*, appeared in the same year.

In 1782, Moses Harris published his *Exposition of English Insects*, &c. illustrated by fifty-one copper-plates, in quarto, in which he has given figures of about 500 species. The text is in French and English, and the specific names are given in Latin, but many such as can never be adopted; such as, for example, (*Aphis Audeo*, &c.

And in quarto, Eric Pontoppidan *Det forste Forsøg paa Norges Naturlige Historie*; Kiøbenhavn.

In the Transactions of the Paris Academy for this year, we find a paper by Morand, entitled, *Memoire sur les Vers de Truffes, et sur les Mouches qui en proviennent*.

J. S. Semler also published, in the German language, under the title *Versuch eines Diarium über die Economie Mancher Insecten im Winter*.

Another interesting work appeared this year, *Nues Magazin für die Liebhaber der Entomologie, Herausgegeben von Joh. Caspar Fuesly, Windethur, in octavo*.

A Part of the *Encyclopédie Methodique*, comprehending *Histoire Naturelle des Animaux*, was published in Paris in this year.

In 1783, Retzius produced his *Genera et Species Insectorum*, in which the method of De Geer is simplified, and the terminology of Linné is partly adapted to that performance. He divides insects into fourteen classes; under the titles, *Lepidoptera, Alingia, Neuroptera, Hymenoptera, Siphonata, Dermaptera, Hemiptera, Coleoptera, Halterata, Proboscidea, Suctoria, Anceata, Atrichelia*, and *Crustacea*.

In this year, a tract on the *Aphides* (plant-lice, or *puccerons*), appeared, entitled, *Nachlese zur Bonnetischen Insectologie*.

And W. Curtis published an interesting little pamphlet, *A short History of the Brown-tail Moth*, the larvæ of which appeared in such immense swarms in the fields surrounding London, during the summer of 1782, and despoiled so many trees of their foliage, as to create apprehensions of the total destruction of the whole vegetable tribe. The object of this tract was to show, that grass, not being the food of these voracious animals, would escape their attack. This is an additional proof, that some benefit at least may result from an acquaintance with the natural history of insects; for the author, by this publication, was enabled to dispel the uneasiness occasioned by these supposed "ministers of famine," and which prevailed to such an alarming extent throughout the whole population of that vast metropolis, that prayers were ordered to be read in all the churches to avert the supposed impending calamity.

And the following work, which we have never seen, but understand to be a valuable publication, *Abhandlungen der Hallischen Naturforschenden Gesellschaft*, Dessau und Leipzig, in octavo.

Also, the interesting work by Baron De Geer, *Genera et Species Insectorum, currante, A. J. Retzio*, Lipsiæ, octavo.

In 1784, an elementary work, in octavo, entitled, *Entomologia Sclarum in usu Concinnata*, was published by J. A. B. Bergstræsser.

Thunberg, in this year, published his *Dissertatio Inscens Insecta Suevica*.

And, in the same year, Harrer wrote on the insects of Germany, under the title, G. A. Harrer's *Beschreibung Derjenigen Insecten Welche Her D. I. C. Schæffer, &c. at Regensburg*, in octavo.

Herbst also produced his work, entitled, *Kurze Einleitung zur Kenntniss der Insekten*, Berlin, octavo.

Laicharting published at Zurich, *Johan Nepomuk, von Laicharting Verzeichniss der Tyroler Insecten*, 2 tom. octavo.

In 1785, the following works appeared:

Entomologia Parisiensis, sive Catalogus Insectorum quæ in agro Parisiensi reperiuntur, Secundum Methodum Geoffranam, &c. edente A. F. De Fourcroy, duodecimo, in two volumes.

Matthew Martyn's *Aurelian's Vade Mecum, &c.* was published in Exeter. The insects are whimsically ar-

ranged, according to the Linnean classes and orders of plants on which they feed.

Historia Naturalis Curculionum Sueciæ; auctore Gabriel Bonsdorff, &c. Upsaliæ; in quarto.

Natursystem aller Bekanten über und Ausländischen Insecten, &c. von Carl. Gustaf. Jablonsky, Berlin, Fortgesetzt von J. F. W. Herbst.

Nath. Gotfr. Leske *Reise Durch Sachsen in Rücksicht der Naturgeschichte und Economie*, Leipzig; in quarto.

Natural-Historische Briefe über Estreich, &c. von Franz, von Paula Schrank, und Karl Erenbert Ritter, von Moll; Salzburgh.

In 1786, Xavier Walfen published an account of the insects inhabiting the Cape of Good Hope.

Beitrage zur Geschichte der Schmetterlinge, Augsburg. *Schmidteins Einleitung in die Insectenlehre*, Leipzig, in octavo.

Scopoli *Delicia Floræ et Faunæ, &c. Ticini*, in folio.

In 1787, were published the following works:

By Dominicus Cyrillus, a folio work on the insects of Naples, entitled *Entomologia Neapolitana*.

A curious little tract, on the gad-fly, was published in Leipsic, by J. S. Fischer, entitled *Observationes de Oestro ovino atque bovino factæ*.

Fabricius printed his *Mantissa Insectorum, &c. Hafniæ*, in two octavo volumes.

Vincentii Petagnæ *Specimen Insectorum Ulterioris Calabria, Francofurti et Moguntia*.

Meidinger *Nomenclator, (Versuch einer Deutschen Systematischen Nomenclatur aller in der letzten Ausgabe des Linneischen Natursystems befindlichen Geschlechter der Thiere, Wien)*, octavo.

Kongb. *Svenska Vetenskaps Academiens Handlingar*, in octavo. This work is often quoted thus, *Act. Holm.*

John Adams published *Essays on the Microscope*, in quarto, at London.

In 1789, a series of letters on the important subject of the cochineal insect, (which had been discovered at Madras a few years before,) from James Anderson, addressed to Sir Joseph Banks, from Madras, were published. Two other letters on this important subject have been published since.

And in the same year, Swederus published a monograph on that curious and interesting genus *Ceraferus*, in a memoir, entitled *Beskrifning paa ett nytt genus island insecterna, hörande til Coleoptera*.

The work of M. B. Borkhausen, treating of the lepidopterous insects of Europe, part I. appeared at Francofurt, under the title *Naturgeschichte der Europäischen Schmetterlinge nach Systematischer ordnung*.

J. F. Gmelin published his edition of the Linnean *Systema Naturæ*. The entomological part is comprized in three parts, and was published in Leipsic. The editor is considerably indebted to the writings of Fabricius; and although he rejects his classification, yet he has copied the species, and incorporated them with the Linnean genera, which he has divided into families answering to the Fabrician genera, and has, by this means, very materially augmented and improved the original work of Linné; although we must allow that he has committed a vast number of the most inexcusable blunders, especially in his quotations and references to plates. He has also, in many instances, described the same animal twice, or three times, under different names. We are surprised that his errors are less numerous, as he can be esteemed in no other light than as an industrious closet compiler.

In this year, also, was published, in Leipsic, octavo,

a work entitled *Nützliches Allerley aus der Natur und dem gemeinen Leben für allerley Leser* von Joh. Aug. E. Goetze.

And Mr Marsham wrote the article Entomology for Hall's Encyclopædia, which is illustrated by three plates. In this article he briefly explains the entomological system of Linné, and mentions the names of other authors of eminence; and likewise explains the mode of collecting and preserving insects.

Also *Beobachtungen und Entdeckungen aus der Naturkunde von der Gesellschaft Naturforschender Freunde zu Berlin*, in octavo.

Likewise J. T. Zs-chach, *Museum N. G. Leskeanum pars Entomologica*, octavo, Lipsiæ.

In 1789, a second edition of Berkenhout's outlines, under the title of *Synopsis of the Natural History of Great Britain*, &c. appeared.

And Johannes Jacobus Röemer published his *Genera Insectorum Linnæi et Fabricii, Iconibus illustrata*, &c. Vitaduri Helvetorum, in quarto, with thirty-seven explanatory plates, nearly all of which had previously constituted the work of Sulzer.

In this year, also, the first part of a most voluminous work, on entomology, was undertaken, at Paris, by the celebrated Olivier, entitled *Entomologie, ou Histoire Naturelle des Insectes, avec des caractères génériques et spécifiques*, &c. par M. Olivier, M. D. a Paris, in quarto. From its title, we might infer, that the author intended to have treated on every class and order, and, in conformity with the first part, to have illustrated the whole with figures. He, however, has confined the work, which is very extensive, entirely to the order coleoptera, which was rendered as complete as possible; it is, however, as must be expected, a very defective, yet a valuable and useful work.

Paykull published in this year, at Upsal, *Ejusdem Monographia Staphylinorum Sueciæ*, in octavo.

And C. de Villers published, at Lyons, a small work, under the title of *Linnæi Entomologia, &c. curante et auctore Carolo de Villers*, Lugduni, in octavo, in which he professes to avail himself of the works of Scopoli, Geoffroy, De Geer, and Fabricius.

In this year, *Natursystem aller bekannten in und ausländischen Insecten*, &c. von Carl. Gustav. Jablonsky, und fortgesetzt von Johann. Friedrich. Wilhelm. Herbst, Berlin, appeared in octavo.

And at Leipsic, in octavo, *Anfangs-gründe der Naturgeschichte* von, Nath. Gotfr. Leske.

In 1790, some remarks on the genus *Melolontha* occur in the *Journal für die Entomologie*, by Mayer, who, in the following year, published a work, in octavo, at Dresden, entitled *Sammlung Physikalischer aufsätze, besonders die Böhmishe Naturgeschichte betreffend, von einer Gesellschaft Böhmischer Naturforscher; herausgegeben von, Dr Johann. Mayer*.

In the same year, 1790, appeared Johann. Daniel Preysler *Verzeichniss Böhmischer Insecten*, Prag, in quarto, which is a catalogue of the insects of Bohemia.

And *Fauna Etrusca, sistens Insecta, quæ in provinciis Florentina et Pisana præsertim collegit*, Petrus Rossius, &c. Liburni, in quarto.

Also, *Dissertatio Historico-Naturalis, ignotas Insectorum species Continens*, Conrad Quesnel, Lundæ, in quarto. Quesnel is author also of two tracts, but we are ignorant of their dates; they are entitled *Beskrifningar öfver 8 nya Suenska, Dagfjärillar, on Papilio*; the other on *noctua pruni*, *Beskrifning öfver en y Natfjäril*.

Paykull published, in the same year, his *Monographia Caraborum Sueciæ*.

Two works, by Scriba, were also published in this fertile year, *Beiträge zu der Insecten Geschichte, herausgegeben von Ludwig Gottlieb Scriba*, Frankfurt, in quarto, part the first; and *Journal für die Liebhaber der Entomologie, herausgegeben von L. G. Scriba*, Frankfurt, in octavo.

And *Insecten Kalender*, von Nic. Jos. Brahm. Mainz, in octavo.

Lastly, a work which we scarcely consider as worthy of notice; it is entitled the *Naturalist's Miscellany*, or, as it is also termed, *Vivarum Naturæ*, by G. Shaw; the figures by P. Nodder. It contains a variety of daubed, (or, as they are termed, coloured) figures, of the more beautiful and larger exotic insects, as well as other animals, with descriptions extremely suitable to the general class of readers, (children,) for whose purpose, we conjecture, it was designed by its author, who, with greater advantages than any other naturalist in this country, has produced this publication, which, we are sorry to state, reflects the greatest disgrace on the class of readers who could give encouragement to so contemptible a performance. We notice it, as we perceive it quoted by children, who, (with such a work as the author might have given to the world,) would very probably be induced to bestow some attention to the study of natural history, so much neglected in this country.

In 1791, a year which produced several valuable entomological works, Meyer published a work which we have noticed under the year 1790, whilst speaking of another of his works.

The first volume of the *Transactions of the Linnean Society of London* was published in London, containing a paper on *Phalæna Bombyx Lubricipeda* of Linné, and some other species allied to it, by T. Marsham, Esq. some observations on the natural history of *Curculio Laphathi*, and *Silpha Grisea* of Linné, by W. Curtis, Esq.; account of a singular conformation in the wings of some species of moths, by Esprit Giorna of Turin; and descriptions of two new species of *Phalæna*, by Louis Bosc of Paris: lastly, under the head of extracts from the minute book, we find mention of a new *Buprestis*, communicated by Mr Dryander.

In the same year, *Neuestes Magazin für die Liebhaber der Entomologie, herausgegeben von D. H. Schneider* 5 hefte. Stralsund, in octavo.

Also an interesting work on some of the Hymenoptera, entitled, *Naturgeschichte, Klassifikation, und Nomenclatur der Insecten von Bienen, Wespen, und Ameisengeschlecht*. Frankfurt am Main, quarto, by Christius Johannes Ludwig.

In the year 1792, several valuable works were produced, and amongst others, the first part of a very considerable work, the *Natural History of British Insects*, by Edward Donovan, which has since been continued in monthly numbers until the present time. The design of this immense undertaking is, to afford general and scientific descriptions of all the insects of Great Britain, accompanied with a coloured figure of each, as far as possible, in their various states of transformation. The work at this time consists of eighteen volumes, and includes an extensive variety of the species, being the most extensive work hitherto undertaken as an elucidation of the Entomology of Britain. It is in octavo, and still continues to appear in monthly numbers.

Thomas Martyn published in this year, in imperial

quarto, at London, *The English Entomologist, exhibiting all the coleopterous Insects found in England, including upwards of five hundred different Species, the Figures of which have never been given to the Public; the whole accurately drawn and painted after nature, arranged and named according to the Linnean system.* The figures given in this work are useless, and its letter press is but indifferent.

Fabricius in this year published his *Entomologia Systematica*: a supplement appeared in 1798, under which head we shall notice his system.

Paykull also, whose name we have often noticed, produced his *Monographia Curculionum Succie*; a species of writing which has tended more than any other to the promotion of natural history.

In 1793, the *Fjusedm Buyträge zur Geschichte der Insecten*, Erlangæ of Panzer, appeared, who in the same year began his most interesting work in monthly numbers, entitled *Fauna Insectorum Germanica Initia, oder Deutschland Insecten*, auctore W. F. Panzer, which still continues to be published.

Dr Smith's *Tour on the continent* in 1786 and 1787, appeared in this year. It contains some interesting remarks on the insects which occurred in his journey.

And Nicolaus Joseph Brahm. *Verzuch einer Fauna Entomologica der Gegend um Mainz.* Rheinisches Magazin zur Erweiterung der naturkunde, herausgegeben von Moriz Balthazar Borkhausen. Giessen, 8vo.

Also an interesting work in 4to, entitled, *Nomenclator über die in den Röselschen Insecten belustigungen und Kleemannschen Beytragen zur Insectengeschichte abgebildeten und beschriebenen Insecten und Würmer mit möglichst vollständiger Synonymie.* Erste Abtheilung. Nürnberg.

In 1794, a second volume of *Linnean Transactions* was published, in which are the following papers: the history and descriptions of four new species of *Phalæna*, by Mr J. Beckwith; a new arrangement of the genus *Papilio* of Linné, by W. Jones, which is so interesting, as coming from such excellent authority, that we cannot refrain from laying before our readers an account of his innovations. The object of his paper was, to point out that the shape of the wings, (which forms a principal character with Linné in his distribution of the families of that genus,) though various at first view, approach each other so gradually, that it is impossible to draw from them the distinguishing line between each family. Linné, he observes, was acquainted with about 274 species, whereas the writer of this memoir states, that he had seen above 1000 in different cabinets, and about 400 more in various publications; and from an attentive examination of these, is induced to offer the following amendments to the characters of each of the Linnean families. Linné describes the *Egites* as having "the upper wings longer from the posterior angle to the point than to the base; antennæ often filiform." He corrects the character thus: "Upper wings longer from the posterior angle to the point than to the base, occasioned by having four instead of three nerves, visible in every other family. The palpi often only a brush; under wings, with a connecting nerve in the centre, and without an abdominal groove."

—*Heliconii*: "Wings narrow, entire, often naked, or deprived of scales; upper wings long; under ones short." Linné. To this character is added, that the upper wings have "a connecting nerve in the centre, very slightly grooved to admit the abdomen, which, with the antennæ, are generally long."—*Danti*: "Wings

entire." Linné. To which Jones adds, "the under wings, with a connecting nerve in the centre, and a deep abdominal groove; palpi projecting."—*Nymphales*: "Wings denticulated." Linné. Jones adds, "the under wings without a connecting nerve in the centre, with a deep abdominal groove; palpi projecting."—*Plebei*: "Small rurales; spots on wings obscure." Linné. Jones adds, "Thorax and abdomen slender; under wings with no connecting nerve; antennæ clubbed; and these he divides into two sections, those with long, weak, flexible tails; and those without tails, and having the wings entire."—*Plebeii urbiculæ*: "Spots on the wings generally transparent." Linné. Mr Jones divides these into three sections, thus: 1. Thorax and abdomen short, thick or broad; under wings without a connecting nerve; antennæ hooked at their points. 2. Upper wings pointed at their extremities, and long in proportion to their width. 3. Upper wings less extended, and, together with their under wings, more round; their margins entire.—To the Linnean families, Mr Jones adds another, which he terms *Romani*, which are generally of a large size, without the abdominal groove; no connecting nerve; antennæ generally sharpened; and the nerves in both wings extending from their base to their extremities nearly in straight lines. We cannot conclude our account of this ingenious arrangement, without observing, that Mr Jones has made a series of drawings for the gratification of himself and friends, of every species which he could obtain access to, in a very elegant and correct style.—In this volume Mr Marwich has given an account of Gmelin's *Musca Pumilionis*, to which some ingenious remarks are added by Mr Marsham.

In this year, *Archives de l'histoire des Insectes publiées en allemand*, par Jean Gaspar Fuesly, traduites en François. Winterthur, in 4to.

Panzer also published *Fauna Insectorum Americæ Borealis prodromus.* Norimburgæ, in 4to. who also edited the following work:

J. E. Voet *Icones Insectorum Coleopterorum, &c. illustravit D. G. Wolfgang, F. Panzer, &c. Erlingæ, in quarto.*

Neuestes Magazin für die Liebhaber der Entomologie, herausgegeben von D. H. Schneider. Stralsund, in 8vo.

In 1793 was published at Halle, in octavo, *Entomologisches Bilderbuch für junge Insektenammler*, von Johann. Heinr. August. Dunker.

And David Henrici Hoppe, M. D. *Enumeratio Insectorum Elytratorum circa Erlangam Indigenarum.* Erlangæ, 8vo.

William Lewin published in this year, *The Papilios of Great Britain*, in quarto; in which he describes in English, with very elegant figures, all the species of butterfly at that time known to inhabit these islands, which amounted to about sixty. We understand that the author intended to have figured all the *Lepidoptera* of Britain; but his untimely death prevented his proceeding farther than the *Papiliones*.

Latreille in this year produced his *Precis du Caractère des Genres*, in which he divides insects into two sections, viz. those with and those without wings, and these he divides into the following orders: *Coleoptères, Orthoptères, Hémiptères, Neuroptères, Lépidoptères, Suceurs, Thyrsanours, Parasites, Acéphales, Entomostracés, Crustacés, and Myriapodes*; as he has completely altered this arrangement in his latter works, we shall omit noticing this method farther, as it will be sufficiently obvious to the reader what these alterations are from the terms employed, &c.

A new edition of Rossi's *Fauna Etrusca*, &c. was published at Helmstad, by Dr Joh. Christ. Lud. Hellwig.

Mr Francillon published a small tract on a new coleopterous insect, accompanied with a coloured figure. It is entitled, *Description of a rare scarabeus, from Potosi in South America; with engraved representations of the same, coloured from nature. Scarabeus macrospus* is the name applied to the singular insect.

In 1795, was published *Insecto-Theologia*, or a *Demonstration of the Being and Perfections of God, from a consideration of the Structure and Economy of Insects*. This is a translation of Lesser's work, mentioned before under the year 1742, with Lyonnet's notes, and a few others by the translator. Lond. 8vo.

In 1796, appeared *Sammlung naturhistorischer und Physikalischer aufsatze von Franz von Paula Schrank*. Nürnberg. In octavo.

Hoppe produced his *Entomologisches Taschenbuch*. Regensburg. In octavo.

And an interesting work in folio, *Museum Regium descriptum* ab Oligerio Jacobæo. Hafn.

Jacob Hübnér published his *Der Sammlung Europaischer Schmetterlinge*, Augsburg, in quarto. But few copies of this beautiful work have reached this country, and, as we have not examined it with care, must refrain from giving our opinion on it. From what we have seen, it appears to be a valuable publication.

The second volume of *Catalogus Bibliothecæ Historica naturalis, Josephi Banks, Baroneti*, by T. Dryander, comprei ending the entomological works of that immense collection of books, was published in 1796. We cannot speak too highly of its contents, which are admirably arranged, in such a manner as to be in itself a valuable bibliothecal system of entomological writers.

In 1797, C. W. Hennert published at Berlin a work in quarto, entitled *Ueber den Raupeufas und Winbrüch in den Jahren*.

And Dr J. E. Smith published a magnificent work in folio, in London, entitled *The natural History of the rarer Lepidopterous Insects of Georgia, collected from the Observations of Mr John Abbott*. It is comprised in two volumes, with about an hundred plates; and the insects are represented in their different states, on one of the plants on which they feed. Mr Abbott, the gentleman from whose notes and drawings the work was formed, was an assiduous collector of insects residing in North America, from whom many of the London cabinets have received the most valuable specimens of the insects of those regions, in the highest state of preservation.

In the same year, *Mantissa Insectorum Iconibus illustrata, Species novas aut nondum depictas exhibens, fas. 1. auctore, Godofredo Christiano Reich, &c. Norimbergæ*. In octavo.

The third volume of the Transactions of the Linnean Society of London, containing some interesting entomological papers, appeared, as follow: Observations respecting some rare British insects, by W. Lewin;—a History of three Species of *Cassida*, by the Rev. William Kirby;—Observations on the Economy of *Ichneumon Manifestator*, by Thomas Marsham, Esq.;—Observations on the Insects that infested the Corn in the year 1795, by Thomas Marsham, Esq.;—lastly, a most interesting and ingenious paper on the *Oestrus*, or Gadfly, by Bracy Clark, Esq.

In 1798, Fabricius published the supplement to his *Entomologia Systematica*; which presents an outline of his system in its latest state; and being the result of

such extensive knowledge as he possessed, demands a considerable share of our attention. He, in this work, divides insects into thirteen classes, as follow:

Class 1. ELEUTHERATA. Jaws naked, free, bearing palpi.

Class 2. ULONATA. Jaws covered with an obtuse galea or mouth-piece.

Class 3. SYNISTATA. Jaws elbowed near the base, and connected to the lower lip.

Class 4. PIEZATA. Jaws horny, compressed, and usually elongated.

Class 5. ODONATA. Jaws horny and toothed; two palpi or feelers.

Class 6. MITOSATA. Jaws horny, arched; no palpi.

Class 7. UNOGATA. Jaws horny, unguiculated.

Class 8. POLYGONATA. Jaws many, (generally two) within the lip.

Class 9. KLEISTAGNATHA. Jaws several, without the lip.

Class 10. EXOCHNATHA. Jaws several, outside the lip, but covered by the palpi.

Class 11. GLOSSATA. Mouth composed of a spiral tongue, situated between the two palpi.

Class 12. RHYNGOTA. Mouth composed of a beak, or articulated sheath.

Class 13. ANTLIATA. Mouth composed of a sucker, not jointed.

In the same year, viz. 1798, Clairville published an octavo work on the insects of Switzerland, in which he proposes to divide insects into eight orders, nearly after the system of Linné; but he distinguishes them by different names, and denominates them sections instead of orders. The names are, *Elythroptera*, *Dictyoptera*, *Phlebotera*, *Halteriptera*, *Lepidoptera*, *Hemiptera*, *Rophiptera*, and *Pododunera*. The work is entitled, *Entomologie Helvétique, ou catalogue des Insectes de la Suisse, &c. avec Descrip. et Figures*. Zurich.

In the fourth volume of the Linnean Transactions, we find, an Essay on the Eye-like spot in the Wings of the *Locustæ* of Fabricius, as indicating the male sex; by Professor Anthony Augustus Henry Lichtenstein;—Account and Figure of a minute *Ichneumon*; by G. Shaw, M. D.—*Amophila*, a new genus of Hymenopterous insects, including the *Sphex sabulosa* of Linné; by Rev. William Kirby;—Further Observations on the Wheat Insect, in a Letter to the Rev. Samuel Goodenough, by T. Marsham, Esq.—History of *Tiphula Tricti*, and *Ichneumon Tiphulæ*, with some observations upon the Insects that attend Wheat; in a letter to Thomas Marsham, Esq. by the Rev. William Kirby;—Observations on the genus *Pausus*, and Description of a new Species; by Adam, Alzelius, M. D.

E. Donovan this year published in London, *Natural History of the Insects of China*, which is the first work on the entomological productions of that vast empire that has appeared. The materials composing this volume, (which is in 4to.), and from which it was in a great manner formed, were obtained from the first and most authentic sources, including many of the species collected at the time of the embassy of Lord Macartney, with many others obtained from the cabinets of the highest celebrity, and the communications of friends. The work is illustrated by fifty copper-plates, beautifully coloured. It has been translated into the French and German languages on the continent.

Fauna Ingrica Prodronus, exhibens methodicam Descriptionem Insectorum agri Petropolensis, &c. auctore J. Cederhielm, Lipsiæ.

And *Verzeichniss der Käfer Prussens entworfen von Johann Gottlieb, von Johann Karl Wilhelm Illiger, &c.* Halle, in 8vo.

Also Busch Webersicht, (*Almanack*) der fortschritte in *Wissen.* Erfurt, in 8vo.

Likewise, *Naturgeschichte der schädlichen Nadelholz-Insecten, nebst Anweisung zu ihrer Vertilgung, (Ein nützliches Lesebuch für Naturforscher, Forstmänner und Oekonomen).* Von Georg. Gottfr. Zinke. Weimar, in 8vo.

Voigt, in this very fertile year, published his *Magazin für den neuesten Zustand der Naturkunde mit Büschricht auf die dazu gehörigen Hülfswissenschaften.* Von Joh. Heinr. Voigt. Weimar, in 8vo.

Schrack also published his *Fauna Boica Durchgedachten Geschichte der in Bayern einheimischen und Zahmen Thiere.* Nurnberg, in 8vo.

In the same year, Paykull published his valuable treatise on the insects of Sweden, entitled, *Gustave Paykull Fauna Suecica, Insecta, Upsalæ,* in three octavo volumes.

In 1799, a very useful work, entitled, *Europäische Fauna oder Naturgeschichte der Europäischen Thiere.* Von J. A. E. Goeze, &c. Kaefcr, Leipzig, in 8vo.

And Christian Cruiter *Entomologische Versuche.* Wien, in 8vo.

In 1800, the science of entomology was considerably advanced, by a vast number of very valuable works.

Cuvier, with the assistance of Dumeril, published in Paris his *Anatomie Comparée*, in which the organization of insects is treated of at great length, and a new systematic arrangement is proposed, and insects are divided into two great sections; those with, and those without, jaws. In the first, are included the orders *Gnathoptères, Neuroptères, Hymenoptères, Coleoptères, and Orthoptères*; in the second, *Hemiptères, Lepidoptères, Diptères, and Aptères.*

In the 5th volume of the Transactions of the Linnæan Society, published this year, we find two interesting papers, viz. a continuation of the history of *Tiphula Tritici*, by the Rev. W. Kirby; and some observations on insects which prey upon timber, with a short history of *Cerambyx Violaceus* Linné, by the same gentleman; both these communications are accompanied by plates.

In this year, Thunberg published his *Museum Naturalium Academiæ Upsalensis, &c.* in 4to.

And E. Donovan published his *Insects of India*, in 4to; and, like the *Insects of China*, embracing in a general, yet scientific view, a comprehensive display of the most rare and beautiful insects peculiar to those fertile regions.

Also Walther's *Forstphysiographie* Herborn, &c.

In the same year, *Archiv für Zoologie und Zootomie.* Von C. R. W. Wiedmann. Berlin and Braunschweig, in four octavo volumes.

And the *Verzeichniss meiner Insecten Sammlung oder Entomologisches Handbuch für Leibhaber und Samler.* Von Jacob Sturm, Erste Heft. Nurnberg, in 8vo.

Lastly, the 5th volume of *Bibliotheca Hist. Nat. Bankiana*, by Dryander, contains some references to the works of entomological writers.

In 1801, a most interesting publication appeared in Paris, by the celebrated Professor of Zoology, Lamarck, entitled *Système des Animaux sans Vertèbres*, in which we find considerable improvements in the entomological department. He removes the greater number of the

Linnæan aptera to two other classes, viz. CRUSTACEA and ARACHNIDES. See our article CRUSTACEOLOGY. The INSECTA he divides into three subclasses: 1. Those with mandibles and maxillæ; 2. Those with mandibles and trunk; 3. Those without mandibles, but having a trunk or sucker. In the first, he places the orders *Coleoptères, Orthoptères, and Neuroptères*; the second is merely confined to the *Hymenoptères*; and in the third, the *Lepidoptères, Hemiptères, Diptères, and Aptères*, (which last contains but one genus, viz. *Pulex*, the flea). His subdivisions of the orders we shall have occasion to notice hereafter at length.

Fabricius also published his *Systema Eleutheratorum Kilia*, in two octavo volumes.

And Illiger produced his *Magazin für Insectenkunde herausgegeben von Karl Illiger.* Braunschweig, in octavo.

Likewise *Neue Beyträge zur Insectenkunde.* Von August. Wilhelm. Knoch. Leipzig, in octavo.

Another interesting work, Frederici Weberi *Observationes Entomologica, continentes novorum, quæ condidit generum characteres, et nuper detectarum Specierum descriptiones.* Kiel, octavo.

Lastly, Jacob Sturm's *Abbildungen zu Kare Illiger's Uebersetzung von Olivier's Entomologie oder Naturgeschichte der Insecten.* Nurnberg, in quarto.

In 1802, several works appeared in this country, and two in Paris, highly interesting, especially to the natural systematist. We may first notice *Histoire Naturelle des Fourmies, et recueil des Mémoires, et des Observations sur les Abeilles, les Araignées, les Francheurs et autres insectes.* Par P. A. Latreille, &c. Paris, octavo.

The Rev. William Kirby this year produced that excellent work, entitled, *Monographia apum Angliæ, &c.* in two octavo volumes. Our author proceeds to point out his reasons for taking up this subject, and under the head of Introductory Remarks, gives us a minute account of the rise and progress of this department of entomology, with remarks on the various works treating on this subject, with definitions of the terms used in describing the genera and species by different authors; and after pointing out the confusion which reigned throughout the order Hymenoptera, gives us a new set of terms, with comments on terminology in general. The characters of the order Hymenoptera, with the generic characters and divisions of families, are next given, intermixed with the economy of each family and subdivision. Under the head of Addenda, we have some interesting remarks on other hymenopterous genera; and at the end of the first volume, a series of plates explaining the various parts of the mouth, &c. peculiar to each family and subdivision. The second volume treats of the species, with occasional remarks on the peculiar economy of each. The descriptions are laboured, and extremely accurate. It is certainly the most scientific work which has appeared in any branch of natural history in this country. In the work of Latreille, which we have mentioned above, we find the same divisions as those instituted by Mr Kirby; they differ merely in terms, Latreille considering each of Mr Kirby's subdivisions as a distinct genus. We wish we had room to give a complete account of this interesting publication, but we have already far exceeded our limits in this department of the article, and shall therefore lay before the reader as much of that valuable work as we can find room for, under the proper head, in our descriptions of the species.

Thomas Marsham, esq. the oldest of the British entomologists, this year published the first volume of his long intended work on entomology. This volume treats of the coleoptera, and is entitled, *Entomologia Britannica*. To the genera of Linné, he adds, *Cistela*, *Corticaria*, *Nitidula*, *Boletaria*, *Opatrum*, *Cryptocephalus*, *Auchenia*, *Crioceris*, *Tillus*, *Scaphidium*, *Clerus*, *Pyrochroa*, *Parnus*, *Heterocerus*, *Blaps*, *Lytta*, *Ips*, and *Drophiplus*; the two last, however, are to be found in the MSS. of Linné. We cannot approve of this author having changed the names of some of the genera, and using them in a different sense from other authors, and in sometimes unnecessarily giving up one name, and imposing a new one; thus we have *Boletaria* for *Mycetophagus*, and *Corticaria* for *Lyctus*, *Ips*, and *Collidium*. In his descriptions he is very accurate; and although he has not adopted all the Fabrician genera, yet in many instances his families are composed of the same materials. We anticipate the completion of his work with great pleasure, as the abilities of the author are universally acknowledged, and his collection and manuscripts extremely valuable.

The sixth volume of the Transactions of the Linnean Society of London, which appeared this year, contains several valuable entomological tracts, viz. "A Dissertation on two natural genera, hitherto confounded under the name of Mantis; by Anthony Augustus Henry Lichtenstein, M.D. &c."—"Observations on Aphides, chiefly intended to shew that they are the principal causes of the blight in plants, and the sole cause of the honey-dew; by W. Curtis."—"Observations on the Curculio Trifolii, or clover-weevil, a small insect which infests the heads of the cultivated clover, and destroys the seed, in a letter to T. Marsham, Esq. by William Marwick, Esq.; with additional remarks by Mr Marsham."—"Further remarks on the Curculio Trifolii, in a letter to William Marwick, Esq.; by Martin Christian Gottlieb Lehmann."—"Descriptions of some singular coleopterous insects; by Charles Schreibers."—"Observations on several species of the genus *Apis*, known by the name of humble bees, and called Bombinutrices by Linné; by P. Huber." This last paper is extremely valuable; and with the others, will be mentioned when we are treating of the genera and species.

This year, an anonymous work, in 2 vols. 8vo. appeared at Edinburgh, under the title of *Elements of Natural History*. It is a very useful elementary book, and does credit to the author, who, it is well understood, is Mr Charles Stewart of that place. The first volume treats of mammalia, birds, amphibia, and fishes; the second volume is entirely dedicated to insects and vermes. It is now out of print; and we may suggest, that if a new edition were altered to suit the present systems, it would prove still more valuable and interesting to the student of natural history: we may be excused for adding, that several species of insects are marked as natives of Britain, which have not been admitted as such into the best British collections,—a slight mistake, but one which is calculated to embarrass the beginner, and may easily be avoided in future.

In the same year, *Faune Parisienne (Insectes) ou Histoire abrégée des Insectes des environs de Paris, classés d'après le Système de Fabricius, &c.* Par C. A. Walckenaer, tome première.

Likewise *Observationes Entomologicae, &c.* Carl. Fred. Fallén. Lundæ.

And *Entomologische Beyträge*. Von J. R. Schellenberg. Winterthur, 4to.

In 1803, A. H. Haworth presented us with the first part of an elaborate work, entitled, *Lepidoptera Britannica*, the object of which is, as we are informed in the preface, to give descriptions of the various species of that beautiful order of insects which are natives of this country. The task is a very difficult one, this being perhaps the most difficult of all the orders; at least in describing the species, the entomologist will find himself more perplexed than in his examinations of any other. The author has acquitted himself, in our opinion, with considerable credit. Two other parts have since appeared, but the work is incomplete, one part being still unpublished.

In this year also appeared, *Versuche über die Insecten. Ein Beytrag zur Verbreitung des Nützlichen und Wissenwürdigen aus der Insectenkunde*; von Carl. August. Schmid. Gotha. In octavo.

Likewise *Voyage en Hongrie, précédé d'une Description de la Ville de Vienne et des Jardins impériaux de Schoenbrunn*, par Robert Townson; publiée à Londres en 1797. Traduit de l'Anglois par Cantwell. Tom 3. Paris. Octavo.

Also *Entomologische Hefte, enthaltend Beiträge zur weitem kenntnis und Ausklärung der Insectengeschichte, &c. Ausgearbeitet von einigen Freunden der Naturgeschichte, mit Kupfertafeln*, von H. Sturm. Frankfurt am Main. Octavo.

Lastly, D. Joh. Fried. Blumenbach's *Handbuch der Naturgeschichte*. Edit. 7ma. Göttingen. Octavo.

In 1804, James Sowerby published the first number of an octavo work, entitled, *The British Miscellany, or coloured figures of new, rare, or little known animal subjects, not before ascertained to be inhabitants of the British Isles, &c.* The few insects figured are highly interesting; but the work, from want of liberal support, has never been continued beyond 12 or 15 numbers.

The seventh volume of the Transactions of the Linnean Society of London appeared this year, in which is the following paper, "Account of the Tusseh and Arrindy Silkworms of Bengal, by Wm. Roxburgh, M. D."

In the same year, *Dictionnaire des Sciences Naturelles. Par plusieurs Professeurs du Muséum National d'Histoire Naturelle et des autres principales Ecoles de Paris, (l'Histoire des Insectes, par le Professeur C. Duméril)*. Paris. Octavo.

And *Naturhistorische Reise durch einer Theil Schwedens*, von Dr Fr. Weber, und D. M. H. Mohr. Göttingen. Octavo.

The *Annales du Muséum National d'histoire naturelle a Paris*, appeared this year in quarto, volume first.

In 1805, Panzer published *Critische Revision der Insecten-fauna Deutschlands, nach dem Systeme bearbeitet*. 1-96 heft. 1. Bandchen. Nürnberg. Octavo.

E. Donovan this year gave to the world another work on exotic insects, in quarto, entitled, *An Epitome of the Natural History of the Insects of New Holland, New Zealand, and New Guinea, Otaheite, and other Islands in the Great Indian, Southern and Pacific Oceans, including the figures and descriptions of one hundred and fifty-three species, &c.* This publication is extremely valuable, not only from the beauty and accuracy of the engravings and descriptions, but also from its rarity, few copies having been published.

Also, Georgii Augusti Goldfuss *Enumeratio Insectorum Eleutheratorum capitibus bona Spei totiusque Africae. Descriptione Iconibus nonnullarum specierum novarum illustrata*. Erlangæ. Octavo.

Likewise, *Journal de la Société des Naturalistes de*

l'Université Impériale de Moscou. Première année. No. 1. et 2. Avec figures. Moscow. Quarto.

And *Insectes recueillies en Afrique et en Amérique, dans les Royaumes d'Ouaré et de Benin, a Saint-Domingue et dans les états-unis, pendant les années 1786 et 7. Par A. F. J. Palisot de Beauvois. Paris. Folio.*

And *Deutschlands Fauna in Abbildungen nach der Natur mit Beschreibungen* von Jacob Sturm, &c. Nürnberg. Lastly, *Vollständige Naturgeschichte der schädlichen Forstinsecten, nebst einem Nachtrag der Schoneiswrethen Insecten, welche die schädlichen vertilgen helfen. Ein Handbuch für Forstmänner, Cameralisten und Oeconomen.* Herausgegeben von Johan. Math. Bechsteine und Georg. Ludw. Scharfenberg, in drey Theilen mit 13 Quartkupfern. Leipzig. Quarto.

In 1806, C. Duméril published at Paris, his *Zoologie Analytique ou Méthode Naturelle de Classification des Animaux*, &c. in which we have the *Insecta* and *Arachnides* classed together, with tabular views of the genera.

An interesting and highly useful work, entitled, *Synonymia Insectorum*, &c. von C. J. Schönherr, &c. Stockholm, was published, Vol. I. Part I. which contains synonyms of each species of insect, with descriptions of such as are new, with occasional remarks. If continued, it will form in itself a considerable part of an entomological library.

P. A. Latreille also this year published the first volume of his *Genera Crustaceorum et Insectorum*; but as we shall follow his arrangement with but little alteration, in the insect class, we shall not enter into any account of the merits of the work, which we think the best on the subject hitherto published.

Dr G. W. F. Panzer published a tract, in small octavo, on the Hymenoptera, entitled, *Entomologischer Versuch die Jürineschen Gattungen der Linnéschen Hymenoptern nach dem Fabriciusschen System zu Prüffen*, &c. von Dr G. W. F. Panzer. Nürnberg.

Also, *Handbuch der Neuesten Entdeckungen in der Heilmittellehre*, von D. Karl. Friedr. Burdach. Leipzig. Octavo.

And *Svensk Entomologi* af Carl. Iser. Linköping. Octavo.

Lastly, *Svensk Zoologi, eller Svenska Djurens Historia*, börjad af C. Quesnel, fortsatt af O. Swartz, utgifver med illustrerande figurer af J. W. Palmstruch. Stockholm. Octavo.

In 1807, a beautiful work, entitled, *Coloured specimens, to illustrate the Natural History of Butterflies*, from the collection of Mr Lee of Hammersmith. This publication is illustrated by twenty copperplates, beautifully coloured, and so admirably executed as to resemble highly finished drawings. It is the production of a lady, whose name we are not at liberty to mention, although the work has done her infinite credit.

Latreille this year published the second and third volumes of his *Genera Crustaceorum et Insectorum*.

An interesting work was also produced, entitled, *Disseratio Monographia Cantharidum et Malachiorum Sveciæ*. Auctor. Carl. Fried. Fallén. Lundæ.

The first part of the *Transactions of the Entomological Society of London*, was published this year, and contains notices of a few new British insects, &c. which we shall notice under their proper head hereafter.

In 1808, Schönherr published a second part of his *Synonymia Insectorum*.

And a very interesting work on the insects of Sweden,

entitled *Insecta Svecica descripta* a Leonardo Gyllenhal, volume the first, which treats of the coleoptera; a second volume, on the same order, has lately reached this country. The descriptions of the species are far more elaborate than any we have yet seen, except Mr Kirby's *Monog. Aph. Aug.*; and if continued, will be the best general work on the Swedish insects that has hitherto appeared.

The ninth volume of the *Transactions of the Linnean Society of London* appeared this year, in which we find, "The genus *Aphon* of Herbst's *Natur. System* considered, its characters laid down, and many of the species described, by the Rev. W. Kirby."—"Some observations on the insect which destroys the wheat, supposed to be the wire-worm, by Thomas Walford, Esq. with additional notes by T. Marsham, Esq."—"Descriptions of *Notoclea*," a new genus of coleopterous insects, from New Holland, by T. Marsham, Esq."

In 1809, the fourth volume, completing the *Genera Crustaceorum et Insectorum* of Latreille, was published.

In 1810, P. A. Latreille published an interesting work, in one volume, in the French language, entitled, *Considerations sur l'Ordre Naturel des Crustacées, des Arachnides et des Insectes*.

In 1811, the second part of the tenth volume of the *Transactions of the Linnean Society of London* was published, in which we find, "Description of several new species of Apion, by the Rev. W. Kirby;"—"Some account of an insect of the genus *Buprestis*, taken alive out of wood composing a desk which had been made more than twenty years; in a letter to Alex. McLeay, Esq. by Thos. Marsham, Esq." And among the extracts from the minute book, we find notice of *Forficula gigantea* of Fabricius having been taken in Britain.

In 1813, the first part of the eleventh volume of the *Transactions of the Linnean Society of London* appeared, in which the following entomological papers are given: "An Essay on the British species of the genus *Meloe*, with descriptions of two exotic species; by William Elford Leach, Esq. F. L. S."—"Strepsiptera, a new order of insects proposed, and the characters of the order with those of its genera laid down; by the Rev. William Kirby, F. L. S."—"A Monograph of the British species of the genus *Cholera*, by William Spence, Esq. F. L. S."

In 1814, commenced a new work, (which has since been continued in monthly numbers), entitled, *The Zoological Miscellany, or Descriptions of new, rare, or highly interesting Animals*; by William Elford Leach, M. D. &c. *Illustrated with Coloured Figures, accurately drawn from Nature*; by R. P. Nodder, animal painter. This work contains descriptions and figures of several new and curious insects.

List of Entomological Works not mentioned in the preceding pages.

Coquebert (Anton. Joann.) *Illustratio Iconographica Insectorum quæ in Musæis Parisiensis observavit et in lucem edidit J. C. Fabricius. Tabularum decas prima.* Fol. Parisiis. An. 7.

Espers *Der Europäischen Schmetterlinge Welcher die Tageschmetterlinge.* Quarto.

An Essay preceding a Supplement of the Aurelian, by Moses Harris. London.

Jacobi Petiver *Gazophylaceum Naturæ et Artis.* Londoni. Folio.

Sepp's *Beschouwing der Wonderen Gods in de Muis-*

* This genus was constructed by Olivier long before the publication of Mr Marsham's Dissertation, under the name *PAROPSIS*.

geachte Schepzeln of Nederlandsche Insecten. Amsterdam. In three volumes, quarto.

Planches enluminées, par Daubenton le jeune. Folio. This work contains figures of several very rare insects, principally of the lepidopterous order.

Ephemerides Academiae Cesareae Naturae Curiosorum. 4to.

Erucarum Ortus, Alimentum et Paradoxa Metamorphosis, par Mariam Sibillam Merian. Amstelodami.

Johannis Eusebii Voet *Descriptiones et Icones Coleopterorum.* Quarto.

Lichtenstein *Catal. Mus. Holthuysen.*

Schriften d. Gesellschaft Naturforschenden Freunde zu Berlin Quarto.

Abhandlungen der Hallischen Naturforschenden Gesellschaft. Dessau und Leipzig. Octavo.

Nova Commentaria Petropolitana. Quarto.

George Heinrich Barowsky *Gemeinnützig Naturgeschichte des Thierreichs.*

Bocks *Naturgeschichte von Preussen.* Tom. 5.

Dominicus Cyrilli *Entomologia Neapolitana Specimen.*

Johanno Leonhard Frischs *Beschreibung von allerley Insecten in Deutschland* 13 Theile. Quarto.

Gleditsch Einleitung in die Forstwissenschaft.

Hamburgisches Magazin, oder gesammelte Schriften aus der Naturforschung, &c.

Herbst *Gemeinnützig Naturgeschichte.*

Petri Löffling *Iter Hispanicum.* Octavo.

Georgius Maregraaf de Leibstatt *Historia Naturalis Brasiliae.*

Piller et Mitterpacher *Iter per Pese.*

Nicolas Robert *Species Florum Variæ, æneis tabulis.* Paris. Folio.

Neuer Schauplatz der Natur.

Schmeideleins *Taschenbuch für Insectenfreunde.*

CLASSIFICATION.

By this term, we mean the distribution of insects into subclasses, orders, tribes, families, genera, and species; and we shall take our outline from the system proposed by Dr Leach, of which the following is a tabular view.

SUBCLASS I. AMETABOLIA.

Insects undergoing no metamorphoses.

ORDER I. THYSANURA. Tail armed with setæ.

ORDER II. ANOPLURA. Tail without setæ.

SUBCLASS II. METABOLIA.

Insects undergoing metamorphoses.

CENTURY I. ELYTHROPTERA. Insects with elytra.

COHORS I. ODONTOSTOMA. Mouth with mandibles.
* Metamorphoses incomplete.

ORDER III. COLEOPTERA. Wings transversely folded; elytra crustaceous, covering the wings, with the suture straight.

** Metamorphoses nearly coarctate.

ORDER IV. STREPSIPTERA. Wings longitudinally folded; elytra coriaceous, not covering the wings.

*** Metamorphoses semi-complete.

ORDER V. DERMAPTERA. Wings longitudinally and transversely folded; elytra somewhat crustaceous, abbreviated, with the suture straight.

ORDER VI. ORTHOPTERA. Wings longitudinally folded; the internal margin of one elytron covering the same part of the other; elytra coriaceous.

ORDER VII. DICTYOPTERA. Wings longitudinally folded twice or more; elytra coriaceous, nervous, one decussating the other obliquely.

COHORS II. SIPHONOSTOMA. Mouth with an articulated rostrum.

ORDER VIII. HEMIPTERA. Elytra somewhat crustaceous, or coriaceous; towards the apex generally membranaceous, horizontal, one decussating the other obliquely. Metamorphoses half complete.

ORDER IX. OMOPTERA. Elytra entirely coriaceous, or membranaceous, and meeting obliquely, with a straight suture. Metamorphoses semi-complete, or incomplete.

CENTURY II. MEDANOPTERA. Insects without wings or elytra.

ORDER X. APTERA. Mouth with a tubular sucking rostrum. Metamorphoses incomplete.

CENTURY III. GYMNOPTERA. Insects with wings, but no elytra.

COHORS I. GLOSSOSTOMA. Mouth with a spiral tongue.

ORDER XI. LEPIDOPTERA. Wings four, membranaceous, with pterigostea, covered with meal-like scales.

COHORS II. GNATHOSTOMA. Mouth with maxillæ and lip.

ORDER XII. TRICHOPTERA. Wings four, membranaceous, with pterigostea, and hairy.

COHORS III. ODONTOSTOMA. Mouth with mandibles, maxillæ, and lip.

ORDER XIII. NEUROPTERA. Four highly reticulated wings, generally equal in size; anus of the female without a sting, or compound borer.

ORDER XIV. HYMENOPTERA. Four venose wings, hinder ones smallest; anus of the female with a sting, or with a compound borer or oviduct.

COHORS IV. SIPHONOSTOMA. Mouth tubular, formed for sucking.

ORDER XV. DIPTERA. Wings, and halteres or balancers two.

SUBCLASS I. INSECTA AMETABOLIA.

ORDER I. THYSANURA.

Tail furnished with setæ, or filaments. Mouth with mandibles, palpi, labrum, and labium.

The bodies of the animals which compose this order, are generally covered with scales or hair. Their motion is extremely rapid, or performed by leaping.

TRIBE I. LEPSIMIDES.

Palpi very distinct and prominent, or exerted. Antennæ composed of a vast number of very short joints. Tail with three exerted setæ.

FAMILY I. Lepismida.

Body depressed, and moving with a running motion. Tail with three nearly equal filaments.

GENUS I. LEPSIMA. Linn. De Geer, Fabr. Latr.

SETOURA. Brown.

FORBICINA. Geoff. Lamarck.

Antennæ inserted between the eyes. Maxillary palpi slender, composed of five joints, the last of which is elongate, and very slender. Labial palpi with their joints compressed, dilated, and round. Eyes small and remote.

Sp. 1. Sacharina. Body covered with silvery scales.

Lepisma Sacharina. Linn. Fabr. Latr.

La Forbicine plate. Geoff. *Hist. des. Ins.* ii. 613. plate 20. f. 3.

This is the only species known. It is very common amongst books, clothes, &c. and wanders about during the night. It is supposed to have been originally introduced into Europe from America, where it is said to live amongst sugar.

FAMILY II. *Forbicinida.*

Body convex, with an arched back formed for springing. Tail with three setæ, the middle one longest.

GENUS II. *FORBICINA.* Geoff.

LEPISMA. Linn. Oliv.

MACHILIS. Latr.

Antennæ inserted under the eyes, shorter than the body. Maxillary palpi thick, with six joints, the last conic. Labial palpi, with the apex membranaceous. Eyes large and contiguous.

Sp. 1. Polyphoda. Smoky brown, with obscure rust-coloured spots.

Lepisma polyphoda. Linn.

Lepisma saccharina. Vill. *Ent.* 4. tab. 11. fig. 1.

Machilis polyphoda. Latr. *Gen. Crust. et Ins.* i. p. 165. tab. 6. fig. 4. magnified.

La Forbicine cylindrique. Geoff.

Inhabits all the temperate parts of Europe, and is found in woods, and under stones.

GENUS III. *PETROBIUS.* Leach.

LEPISMA. Fabr.?

Antennæ longer than the body, inserted under the eyes. Maxillary palpi six-jointed, the fifth joint inversely conic, the sixth conic. Labial palpi, with the last joint obliquely truncate, with the apex acute, and not membranaceous. Eyes large and contiguous.

Sp. 1. Maritimus. Blackish, with golden scales. Feet yellowish. Setæ of the tail annulated with white.

Inhabits all the rocky shores of Britain. Dr Leach first observed this species on the Devonshire coast, and afterwards in Ireland, Scotland, and Wales. Can it be the *Lepisma polyphoda* of Fabricius?

TRIBE II. *PODURELLIDES.*

Palpi not exerted, nor very conspicuous. Antennæ composed of four joints, the last sometimes formed of several other minute articulations. Tail forked, and bent beneath the abdomen.

GENUS IV. *PODURA.* Linn. Geoff. De Geer, Fabr. Lam. Hermann.

Antennæ with the last joint solid, not articulated. Abdomen elongate, linear.

Sp. 1. Plumbea. Lead coloured, shining, with grisous head and feet.

Podura plumbea. Linn. Fabr. Lat.

Podure plumbea. De Geer.

La Podure grise commune. Geoff.

Inhabits Europe, under stones. A good figure may be found in Roemer's *Genera Insectorum*, tab. 29. fig. 2.

There are a vast number of species in this and the following genus, which are worthy of attention. Fabricius, who placed these two genera together without the slightest distinction, has described several species, to which we cannot refer, from not having studied his species, which we trust some future zoologist will be induced to examine.

GENUS V. *SMYNTHURUS.* Latr.

PODURA. Linn. Fabr. De Geer, Geoff.

Sp. 1. Fuscus. Body entirely brown.

La Podure brun enfumée. Geoff.

Podure brun, ronde. De Geer, *Mem. sur les Ins.* vii. 35. tab. 3. fig. 7, 8.

Podura atra. Linn.? Fabr.

Smynthurus fuscus. Latr.

Inhabits Europe, is common on the ground, and in damp hedges.

Sp. 2. Viridis. Body green.

Podura viridis. Linn. Fabr.

La Podure verte aux yeux noirs. Geoff.

Smynthurus viridis. Latr.

Inhabits various trees in Europe.

ORDER II. *ANOPLURA.*

Tail without setæ or filaments. Mouth in some furnished with two teeth, (or mandibles?) and an opening beneath; in others with a tubulose, very short haustellum.

The animals of this order are parasitical, and were by Latreille placed in an order which he named *Parasita*. This name Dr Leach has changed for the sake of harmony, and also to render the name more easy of retention in the memory, the characters being drawn from the same parts.

Their motion is slow, and their nourishment is derived from the blood of mammalia, birds, and insects.

It is almost an established fact, that every species of bird (and probably mammiferous animal) has its own peculiar parasite; and there is no instance of the same species of louse having been observed on two distinct species of birds, although some birds (as the raven, oyster-catcher, &c.) are infested with several species of parasites. The importance of clearly ascertaining the truth is such, to the ornithologist, that Dr Leach has employed a considerable portion of time, for the purpose of investigating and of describing the species with accuracy, little more than a bare catalogue of names and habitats having been given in the works of Linnæus, Fabricius, and Gmelin. The result of his examinations he does not consider himself as able to communicate at present; but it is his intention, when the subject has arrived at maturity, to give a paper on this order to the Linnean Society of London.

TRIBE I. *PEDICULIDES.*

Mouth consisting of a tubulose, very short haustellum.

GENUS VI. *PTHRUS.* Leach.

PEDICULUS. Linn. Redi, Latr. Fabr.

Anterior pair of feet simple, two hinder pair didactyle. Thorax extremely short, scarcely visible.

Sp. 1. Inguinalis. Body whitish.

Pediculus inguinalis. Redi.

Pediculus pubis. Linn. Fabr. Latr.

Le morpion. Geoff.

Inhabits the pubes and eyebrows of men and women, especially of those of easy virtue, being commonly known under the titles crabs, crab-lice, &c.

GENUS VII. *PEDICULUS.* Linn. Fabr. De Geer, Geoff. Redi, Hermann, Lam.

Feet all armed with a finger and thumb. Thorax composed of three distinct equal segments.

Sp. 1. Humanus. Body oval, lobate, white and nearly immaculate.

Pediculus humanus. Fabr. Linn. Latr.

Pou humain du corps. De Geer, *Mem. sur les Ins.* tom. vii. p. 67. plate 1. fig. 7.

Inhabits the bodies and garments of men, and is known by the name of the body-louse. On the continent of Europe, especially in Spain and Portugal, it is very abundant. In Britain it is of very rare occurrence, and may have been introduced from the neighbouring countries.

Sp. 2. Cervicalis. Body oval, lobed, cinereous, with a black interrupted band on either side.

Le pou ordinaire. Geoff.

Pou humain de la tête. De Geer, *Mem. sur les Ins.* vol. vii. p. 67. tab. 1. fig. 6.

Pediculus humanus var. Linn.

Pediculus cervicalis. Latr.

Inhabits the heads of man throughout Europe. In Britain it is extremely common, especially in the heads and upper part of the necks of children, whence they are extracted by means of a fine toothed comb, or are destroyed by rubbing calomel, mixed with a little fat, amongst the roots of the hair. This species has been by many authors confounded with the preceding species.

TRIBE II. NIRMIDES.

Mouth with a cavity, and two teeth, or mandibles.

GENUS VII. NIRMUS. Hermann.

RICINUS. De Geer, Oliv. Lam. Latr.

PIDICULUS. Linn. Geoff. Fabr.

The character of this genus is given in that of the tribe. All the species inhabit birds. The term *ricinus* having been used in botany is rejected, and that of Dr Hermann's is adopted.

Sp. 1. Cornicis. Whitish; head heart-shaped; segments of the thorax on each side produced into a tooth; abdomen oval, transversely banded with brown.

Ricin de la Corneille. De Geer, *Mem. sur les Ins.* tom. vii. p. 76. plate 4. fig. 11.

Ricinus cornicis. Latr.

Inhabits the *Corvus cornix* of Linnæus.

SUBCLASS II. INSECTA METABOLIA.

ORDER III. COLEOPTERA.

ORDER COLEOPTERA, Linn. Cuv. Lam. Latr.

CLASS ELEUTERATA, Fabr.

This order is divided into five great sections, from the general number of joints in the tarsi.

SECTION I. PENTAMERA.

The number of joints in the tarsi is generally five, but in some of the aquatic genera the number is less.

TRIBE I. CICINDELIDES.

Maxillary palpi four, the interior ones two-jointed. Labial two. Antennæ filiformes. Maxillæ furnished at their extremities with a distinct articulated hook. Mandibles with many teeth. Feet formed for running; hinder ones with trochanters.

Mentum broadly notched; internal side of the anterior tibiae never notched; antennæ not moniliform.

GENUS VIII. MANTICORA, Fab. Oliv. Lam. Latr.

CARABUS. De Geer.

CICINDELA. Thunberg, Clairville.

Thorax somewhat heart-shaped. Abdomen very large, pedunculated, nearly inversely heart-shaped. Elytra embracing and shielding the whole of the abdomen, connected at the suture.

Antennæ inserted beyond the apex of the eyes, under a little process. Clypeus of the same size with the labrum. Labial and external maxillary palpi, with the last joint at the apex much compressed, and gradually a little broader. Scutellum scarcely visible.

Sp. 1. Maxillosa. Black, with rough elytra.

Manticora maxillosa. Fabr.

Manticora maxillaris. Oliv. Latr.

Cicindela gigantea. Thun.

Carabe a tubercules. De Geer. *Mem.* 7. 623. pl. 46. fig. 14.

Inhabits the Cape of Good Hope, and is figured by Herbst's Archives, tab. 46. fig. 6.

GENUS IX. COLLYRIS. Latr.

COLLYRIS. Fabr.

CICINDELA. Oliv.

Thorax long, cylindric-conic, narrow, attenuated in front. Abdomen long and narrow. Elytra not embracing the abdomen.

* With wings.

Sp. 1. Longicollis. Cyaneous; apex of the elytra notched; thighs red.

Collyris longicollis. Fabr.

Cicindela longicollis. Oliv.

Collyris longicollis. Latr. *Gen. Crust. et Ins.* 1. tab. 6. fig. 8.

Inhabits Bengal.

** Without wings.

Sp. 2. Aptera. Black; elytra connected with the middle part rough; thighs red.

Collyris aptera. Fabr.

Cicindela aptera. Oliv.

Collyris aptera. Latr.

Inhabits the East Indies.

GENUS X. MEGACEPHALA. Latr.

GNATHO, Illiger.

CICINDELA, Linn. De Geer, Fabr. Oliv.

Thorax short, cylindric. Elytra convex-rounded. Labial palpi much longer than the external maxillary palpi.

* Elytra connected; no wings.

Sp. 1. Senegalensis. Black-green; antennæ and feet ferrugineous.

Cicindela megaloccephala. Fabr. Oliv.

Megacephala Senegalensis. Latr.

Inhabits Senegal.

** Elytra not connected; wings.

Sp. 2. Carolina. Purple-green; antennæ, mouth, a lunula at the apex of the elytra, and the feet ferruginous-yellowish.

Cicindela Carolina. Linn. Fabr.

Megacephala Carolinensis. Latr. *Gen. Crust. et Ins.* tab. 6. fig. 9.

Inhabits Carolina, where it is very abundant.

GENUS XI. CICINDELA, Linn. De Geer, Fabr. &c.

BUPRESTIS, Geoff.

Thorax short. Elytra flat, rounded. External maxillary palpi as long as the labial. Antennæ inserted into the anterior margin of the eye. Clypeus shorter than the labrum.

Sp. 1. Sylvatica. Obscure æneous above; each elytron with an external lunule at the base, with a mark at the apex, and an intermediate transverse, narrow, sinuated band of white; with many impressed punctures near the suture.

Cicindela sylvatica. Linn. Oliv. Latr.

Cicindèle des forêts. De Geer. *Mem.* 4. 114. tab. 4. fig. 7.

Inhabits Europe. Is found on Martlesome Heath, Suffolk, occasionally; near Christchurch, in Hampshire, it is very common.

Sp. 2. Hybrida. Gopperry-green, or obscure copper-black above, often with a purple tint; each elytron with an external lunule at the base, another at the apex, with an intermediate transverse sinuous-toothed band of white; suture cupreous.

Cicindela hybrida. Linn. Oliv. Fab. Latr.

Cicindèle tachetée. De Geer, *Mem.* 4. 115. pl. 4. fig. 8.

Inhabits the sandy maritime plains of Europe; near

Swansea, at Cromblynn Burrows, and on the sea-shore near Yarmouth, it is taken in profusion.

Sp. 3. Campestris. Green; sides of the head and thorax, with the thighs, coppery-purple; each elytron with four white marginal spots, and a fifth near the suture.

Cicindela campestris. Linn. Fab. Oliv. Latr.

Cicindèle champêtre. De Geer, *Mem.* 4. p. 113. pl. 4. fig. 1.

Inhabits the sandy plains and pathways of Europe, and is very plenty.

TRIBE II. CARABIDES.

Maxillary palpi four, the interiors two-jointed. Labial two. Maxillæ bent at the apex, hooked, without a distinct joint. Mandibles rarely with more than one tooth, which is towards the apex. Feet formed for running; hinder ones with a trochanter.

Mentum broadly notched. Internal edge of the anterior tibiae often notched. Antennæ filiform, sometimes moniliform.

I. Body oblong, or ovoid. Labial palpi, inserted at the inferior sides of the lip. (*Observe.* The insects of this division do not live in the water.)

A. Anterior tibiae notched in their internal edge.

a. Labial and maxillary palpi abruptly terminated, with a joint very different in size from the others. Antennæ straight.

GENUS XII. NOTHIOPHILUS. Dumeril.

CICINDELA. Linn. Marsh.

ELAPHRUS. Fabr. Latr. Illig.

Palpi maxillary external and labial, with the last joint larger than the preceding joint, and somewhat cylindrical.

Thorax flat, smooth, nearly quadrate, with the transverse diameter exceeding the longitudinal.

Sp. 1. Aquaticus. Brown-brassy shining. Front corrugated. Elytra with punctured striae, and a longitudinal smooth interval near the suture.

Cicindela aquatica. Linn. Marsh.

Elaphrus aquaticus. Fabr. Latr.

Inhabits pathways and the banks of ponds. *Cicindela semifunctata* of Linné, *Elaphrus semifunctatus* of Fabricius, &c. is the same species. There is a variety β of Paykull which has been taken in Norfolk, and on the shore near Porto-Bello, Scotland, having little of the rufous lustre.

Sp. 2. Biguttatus, may be at once distinguished by the whitish termination of its elytra.

Cicindela biguttata. Marsh.

Elaphrus biguttatus. Fabr.

GENUS XIII. ELAPHRUS. Fabr. Latr. Dum. Illig.

CICINDELA. Linn. Marsh.

Labial and external maxillary palpi, having the last joint longer than the preceding, and somewhat cylindrical. Thorax truncate-obcordate, convex and unequal, with nearly equal diameters, or with the longitudinal rather the longest.

Sp. 1. Riharius. Green or brownish bronze; elytra equally punctured, with impressed spots having a purple centre, with a pale green margin and coppery spot on each, near the suture.

Elaphrus riharius. Fabr. Latr.

Cicindela riharia. Linn. Marsh.

Inhabits moist banks, and marshes every where.

Sp. 2. Uliginosus. Coppery-rufous, with round cicatrices, more distinctly punctured, centres purple, margin green, elevated, with cupreous spots between.

Elaphrus uliginosus. Fabr. Latr.

Inhabits marshy and boggy ground. It is esteemed a rare species. It occurs in Battersea fields, near Lon-

don, and in the banks of wet ditches on the borders of the Links near Edinburg, in great numbers.

GENUS XIV. BEMBIDIUM.

BEMBIDIUM. Latr.

CICINDELA. Linn. Marsh.

CARABUS. Linn. Marsh. Fabr. Oliv.

ELAPHRUS. Fabr. Illig. Oliv.

OCCYDROMUS. Frolsch, Clairville.

Sp. 1. Flavipes. Thorax somewhat narrower than the head, equally broad and long, with very prominent eyes; body rufous above, black-green beneath. Elytra mottled with copper, with two impressed dots in each near the suture. Palpi, base of antennæ, and feet, yellowish.

Cicindela flavipes. Linn. Marsh.

Elaphrus flavipes. Fabr. Oliv.

Bembidium flavipes. Latr.

Inhabits the sandy shores of ponds and rivulets, but is not common in Britain.

Sp. 2. Littoralis. Thorax somewhat broader than the head, truncate-obcordate, punctured and excavated at the angles. Body rufous black. Elytra with punctured striae, and each with a humeral spot, another at the apex, and with the feet rufous.

Carabus littoralis. Oliv.

Elaphrus rufestris. Illig.

Bembidium littoralis. Latr.

Inhabits France and Germany.

Observe. This genus contains a vast number of species, which require some distribution into sections.

b. Labial and external maxillary palpi not abruptly terminated by a joint distinct from the rest in size. Antennæ straight.

* Lip prominent; mandibles very strong, their internal edge prominent or toothed.

† Elytra not truncate.

GENUS XV. SCARITES. Fabr. Oliv. Lam.

Antennæ moniliform, third joint much longer than the second. Mandibles dentated on their internal edge. Lip short and broad, without auricles. Tibiæ, anterior ones palmated.

Sp. 1. Gigas. Black, shining. Thorax lunate, behind on each side with one dent. Elytra smooth, shoulders one-dentate. Mandibles sulcate, with the internal process large, dentate, with the apex acute.

Scarites gigas. Fabr. Oliv. Latr.

Inhabits Barbary and the south of France.

GENUS XVI. CLIVINA. Latr.

SCARITES. Fabr.

TENEBRIO. Linn.

CARABUS. Marsham.

Antennæ moniliform, second joint longer than the third. Mandibles without teeth on their internal edge. Lip elongate, with two auricles. Anterior tibiae generally notched.

* Anterior tibiae externally dentate.

Sp. 1. Fossor. Blackish or brunnescous. Thorax somewhat quadrate, middle of the front impressed. Elytra with punctured striae.

Tenebrio fossor. Linn.

Scarites arenarius. Fabr.

Clivina arenaria. Latr.

Carabus distans. Marsham.

Inhabits Europe, under stones, especially in moist situations, where the ground is sandy.

** Anterior tibiae, with obsolete teeth.

Sp. 2. Gibba. Black brown. Thorax nearly globose. Elytra with punctured striae, smooth towards their apex. Feet paler.

Scarites gibbus. Fabr.

Clivina gibba. Latr.

Inhabits France and England in moist or damp banks. In Battersea fields it is very common during the summer months.

GENUS XVII. MORION. Latreille.

Antennæ moniliform; second joint much shorter than the third.

Sp. 1. Monilicornis. Plain, elongate, very black, shining; thorax on each side at the posterior angles impressed; elytra striated.

Inhabits the American islands.

GENUS XVIII. APOTAMUS. Hoffmannsegg, Latreille. SCARITES. Rossi.

Antennæ filiform. Mandibles pointed. Exterior maxillary palpi very long and filiform; labial palpi much shorter and subulate.

Sp. 1. Rufus. See Rossi *Faun. Etrus.*

GENUS XIX. SIAGONA. Latr.

CUCUJUS. Fabr.

Antennæ somewhat setaceous. Mandibles pointed; the internal edge projecting. Labial and exterior maxillary palpi terminated by a nearly securiform joint.

Sp. 1. Rufipes. Brunneous-black; punctate; thorax somewhat sulcate; antennæ and feet red.

Cucujus rufipes. Fabr.

Siagona rufipes. Latr. *Gen. Crust. et Ins.* tom. i. p. 209, tab. 7, fig. 9.

Inhabits Barbary.

GENUS XX. SPHODRUS. Clairville.

HARPALUS. Latreille.

CARABUS. Linn. Fabr. Marsh. Payk.

Antennæ not moniliform, with the third joint much elongate. External maxillary palpi with the last joint, save one, longer than the last.

Sp. 1. Planus. Oblong, black more shining beneath; elytra with fine punctured striae; trochanters of hinder thighs acute.

Carabus leucophthalmus. Lin. Marsh.

Carabus planus. Fabr.

Carabus spiniger. Paykull. Oliv.

Harpalus leucophthalmus. Latreille.

Sphodrus planus. Clairville.

Inhabits Europe. It is found in cellars and woods. The Linnean name is rejected as absurd, most of the *Carabides* having white eyes after death, but never whilst living.

GENUS XXI. STOMIS. Clairville.

HARPALUS. Latr.

CARABUS. Illig. Panz.

Antennæ not moniliform, with the third joint not longer than the following articulations. External maxillary palpi with the last joint somewhat cylindrical longer than the one before it, a little attenuated at its base, and truncate at the apex.

Sp. 1. Pumicatus. Oblong, blackish brown; antennæ and feet rufescent; thorax with an impressed dorsal line, and a little groove on each side behind; elytra with punctured striae.

Carabus pumicatus. Illig. Panz.

Inhabits France, Germany, and England, under stones.

GENUS XXII. HARPALUS. Latr.

CARABUS. Linn. Fabr. Marsh.

Antennæ with the third joint a little longer than those which follow. External maxillary palpi with the two last joints equal in length, the last attenuated at the base and apex.

Sp. 1. Ruficornis. Head and thorax black; elytra ob-

scure blackish brown, downy, punctulate, striated; thorax without foveolæ behind; antennæ and feet red.

Carabus ruficornis. Oliv. Panz. Marsh.

Harpalus ruficornis. Latr.

Inhabits Europe, under stones; the most common species of the genus.

GENUS XXIII. ZADRUS. Clairville.

HARPALUS. Latr.

CARABUS. Fabr.

Antennæ not moniliform. External maxillary palpi with the last joint shorter than the one before it.

Sp. 1. Tardus. Black above, somewhat fuscous beneath; antennæ, tibiae and tarsi brown; thorax without foveolæ, the hinder margin and abdomen widely punctured; elytra with punctured striae.

Harpalus tardus. Latr.

Carabus gibbus. Fabr.

Inhabits the plains of France and Italy.

GENUS XXIV. TRECHUS. Clairville, Latr.

CARABUS. Linn. Marsh.

Antennæ not moniliform. Mandibles pointed. Exterior maxillary and labial palpi filiform, terminated by a sharp-pointed joint.

Sp. 1. Meridianus.

GENUS XXV. LICINUS. Latr.

CARABUS. Fabr.

Antennæ not moniliform. Mandibles very obtuse. Labial and external maxillary palpi terminated by a nearly securiform joint.

Sp. 1. Emarginatus. Obscure black; elytra (without the aid of a lense) smooth.

Carabus cassidens. Fabr. Illig.

Licinus emarginatus. Latr. *Gen. Crust. et Ins.* tom. i. p. 199, tab. 7, fig. 8.

Inhabits Europe; but is very rare.

GENUS XXVI. BADISTER. Clair. Latr.

CARABUS. Fabr.

Antennæ not moniliform. Mandibles very obtuse. Exterior maxillary palpi filiform; the labial palpi terminated by a thick short-ovoid joint.

Sp. 1. Bifustulatus. Black; base of antennæ, feet, thorax, and wing-cases, red, the latter with a sutural lunate mark of black.

Carabus bifustulatus. Fabr.

Badister bifustulatus. Latr.

Inhabits France, Germany, and Britain.

** Elytra truncate at their extremities. Head and corselet narrower than the abdomen.

GENUS XXVII. ANTHIA. Web. Fabr. Latr.

CARABUS. Oliv. Linn.

Thorax cordiform. Head not narrow behind. Neck not apparent. Palpi filiform. Lip projecting in the form of a horny tongue. Abdomen oval, convex.

Sp. 1. Decemguttata. Black; coleoptera with nine grooves, and ten white spots.

Carabus decemguttatus. Linn. Oliv.

Anthia decemguttata. Latr.

Inhabits the Cape of Good Hope, where it is common.

GENUS XXVIII. GRAPHIPTERUS. Latr.

CICINDELA. De Geer.

ANTHIA. Fabr.

Thorax cordiform. Head not narrow behind. Neck not apparent. Palpi filiform. Lip nearly square, with the sides membranaceous, and rounded at the extremity. Abdomen orbicular, much depressed.

Sp. 1. Multiguttatus. Black; front, sides of the thorax, and margins of the wing-cases and sixteen spots

white tomentose; the marginal band of each elytron bifid-tentate within.

Carabus multiguttatus. Oliv.

Anthia variegata. Fabr.

Graphipterus multiguttatus. Latr. *Gen. Crust. et Ins.* tom. i. p. 186, tab. 6, fig. 11.

Inhabits Egypt.

GENUS XXIX. *BRACHINUS*. Web. Fabr. Latr. Clair.

CARABUS. Linn. Marsh.

Thorax cordiform. Head not narrow behind. Neck not apparent. Palpi filiform. Lip nearly square, sides membranaceous, and terminated by a point. Abdomen paralleliped. Tarsi with entire joints.

Obs. All the species of this genus have the power of emitting a smart sound, accompanied by an evolution of some gas, which they repeat two or three times at short intervals when they are first taken.

Sp. 1. *Crepitans*. Red-rusty; thorax narrowly truncate cordiform; elytra black-blue-green; abdomen blackish; antennæ, with the exception of the tips of the third and fourth joints, obscure blackish.

Carabus crepitans. Linn. Marsh.

Brachinus crepitans. Web. Fabr. Latr. Clairv.

Inhabits Europe under stones. It is rare in England. There is a small variety found in France and Germany, that has not hitherto occurred in Britain.

GENUS XXX. *EOHIMUTHUS*. Leach.

CARABUS. Linn. Marsh. Fabr.

LEBIA. Latr.

BRACHINUS. Clairv.

Thorax short, cordiform, broader than long. Head not narrow behind. Neck not apparent. External maxillary palpi distinctly truncate; labial palpi with the last joint thicker. Abdomen nearly perfectly quadrate. Tarsi with the fourth joint bifid.

Sp. 1. *Cyanocephalus*. Intense blue-green; first joint of the antennæ, thorax, thighs, and tibiae, red; elytra with punctured striae, the spaces between the striae punctulated; knees black.

Carabus cyanocephalus. Linn. Marsh. Fabr.

Lebia cyanocephala. Latr. *Gen. Crust. et Ins.* vol. i. p. 191, tab. 6, fig. 12.

Inhabits Europe under the bark of trees, and on hot dry banks.

GENUS XXXI. *RISOPHILUS*. Leach.

CARABUS. Linn. Fabr. Marsh.

LEBIA. Latr.

Thorax cordiform, a little longer than broad. Head a little narrowed behind. Neck not apparent. Palpi filiform, terminated with a thick ovoid truncate joint. Abdomen very much depressed. Tarsi with the fourth joint bifid.

Sp. 1. *Atricapillus*. Body pale yellowish; head black; mouth and thorax reddish; elytra obsolete striated.

Carabus atricapillus. Linn. Fabr.

Lebia atricapilla. Latr.

Inhabits Europe under the bark of trees. In Britain it very frequently occurs, on the sandy plains which are thrown up from the sea, amongst the roots of juncus and other plants which grow in those parts.

GENUS XXXII. *LEBIA*. Latr.

CARABUS. Linn. Fabr.

Thorax cordiform, a little broader than long. Head but little narrowed behind. Neck not apparent. Palpi filiform, terminated with a large ovoid, truncate joint. Abdomen much depressed. Tarsi with entire joints.

Sp. 1. *Quadrifasciatus*. Thorax ferrugineous; head rugulose, black, with the mouth reddish; elytra striated,

black, with two pale yellow spots on each; feet pale yellow.

Carabus quadrifasciatus. Linn. Fabr.

Lebia quadrifasciata. Latr.

Inhabits Europe, under the bark of trees.

GENUS XXXIII. *CYMINDIS*. Latr.

CARABUS. Fabr. Oliv. Marsh.

TARUS. Clairville.

Thorax cordiform. Head not narrowed behind. Neck not apparent. Exterior maxillary palpi filiform; labial palpi terminated by a large securiform joint. Body depressed. Tarsi with entire joints.

Sp. 1. *Humeralis*. Black, punctate; antennæ, mouth, thorax, lateral margins of the elytra, the shoulders, and feet, red; elytra striated.

Carabus humeralis. Fabr. Oliv. Payk. Rossi.

Cymindis humeralis. Latr.

Inhabits France, Sweden, Germany, and England; but is extremely rare.

GENUS XXXIV. *ZUPHIUM*. Latr.

CARABUS. Ross. Oliv.

GALERITA. Fabr. Clairv.

Thorax cordiform. Head not narrowed behind. Neck very apparent. External maxillary and labial palpi terminated by a large nearly obconic joint. Body very much depressed.

Sp. 1. *Oleus*. Red, minutely punctate; head (mouth excepted) black; elytra brown, obsolete striate, with common red spot at the base, and another at the apex.

Carabus oleus. Rossi *Faun. Etrus.* i. tab. 6, fig. 2, Fabr.

Zuphium oleus. Latr.

Inhabits Italy and the southern parts of France.

GENUS XXXV. *GALERITA*. Fabr. Latr.

CARABUS. De Geer, Oliv.

Thorax cordiform. Head narrowed, and lengthened behind. Neck very distinct. External maxillary and labial palpi terminated by a large securiform joint. Body not very much depressed.

Sp. 1. *Americana*. Black; first joint of antennæ, thorax, and feet, ferrugineous; elytra black-blue.

Galerita Americana. Fabr. Latr. *Gen. Crust. et Ins.* tab. 7, fig. 2.

Inhabits North America. Is very well figured by Drury, in his *Illustrations of Insects*, tom. i. pl. 42, fig. 2.

GENUS XXXVI. *DRYPTA*. Latr. Fabr.

CARABUS. Ross. Marsh.

CINCINDELA. Oliv.

Thorax cylindric. Head not narrowed or lengthened behind. Mandibles much elongated and very prominent. Exterior maxillary and labial palpi terminated by a large nearly obconic joint, (maxillary ones much lengthened). Lip elongate linear, with two auricles.

Sp. 1. *Emarginata*. Blue, punctate, villose; mouth, antennæ, and feet, red; thorax with an impressed longitudinal line; elytra with punctured striae; apex of the first, and middle of the third joint of the antennæ, brown.

Drypta emarginata. Fabr. Latr. *Gen. Crust. et Ins.* tom. i. p. 197, tab. 7, fig. 3.

Cicindela emarginata. Oliv.

Carabus dentatus. Ross.

Carabus chrysostomus. Marsham.

Inhabits France, Germany, Italy, and England. In the former and latter of these countries it is extremely rare. It has been taken near Hastings in Suffolk; specimens from that neighbourhood are preserved in Dr Leach's cabinet.

GENUS XXXVII. ODACANTHA. Payk. Fabr. Latr.

ATTELARUS. Linn.

CARABUS. Oliv.

Thorax cylindric. Head not lengthened or narrowed behind in any great degree. Mandibles not remarkably long or prominent. Palpi filiform.

Observation. The structure of the mouth and the general appearance of this genus is that of *Lebia*.

Sp. 1. *Melanura*. Green-blue; first joints of the antennæ, elytra (apex excepted), breast, and feet, pale-rusty-red; thorax distinctly punctured; elytra slightly and widely punctured, the punctures arranged into obscure striæ; knees, tarsi, and antennæ (base excepted), blackish.

Attelabus melanurus. Linn.

Odacantha melanura. Payk. Fabr.

Inhabits Europe. In Britain it occurs near Swansea, and near Norwich in considerable abundance.

GENUS XXXVIII. AGRA. Fabr. Latr.

Thorax nearly conic. Head much narrowed behind and lengthened. Palpi filiform, the labial ones with the last joint oval-round.

Observation. In the structure of the mouth, this genus makes a near approach to *Lebia*, from which it differs in having the last joint of the labial palpi more elongate. Latreille makes two divisions, which we suppose should constitute genera.

* Fourth joint of the tarsi bifid.

Sp. 1. *Aenea*. Thorax punctate; elytra bidentate.

Agra aenea. Fabr.

Agra cajennensis. Latr.

Inhabits South America.

** All the joints of the tarsi entire.

Sp. 2. *Surinamensis*. Brunneous; head and thorax black; antennæ intersected with white and black; elytra striated, with their apex bidentate; feet red.

Agra surinamensis. Latr.

Inhabits Surinam.

Sp. 3. *Pennsylvanica*. Black; elytra red; with punctured striæ at the base; marginal spot, another on the suture, and the tip, black; feet red; knees black.

Inhabits Pennsylvania.

** Lip not prominent; mandibles small, their internal edge neither toothed or prominent.

GENUS XXXIX. PANAGEUS. Latr.

CARABUS. Linn. Fabr. Marsh.

Thorax orbicular. Head narrower than the abdomen, with very prominent globular eyes. Neck distinct. Abdomen large, nearly quadrate.

Sp. 1. *Crux-major*. Black, deeply punctured; elytra red, with punctured striæ, and a cross, and tips black.

Carabus crux-major. Linn. Fabr. Marsh. Panz.

* *Panageus crux-major*. Latr.

Inhabits Europe.

c. Labial and external maxillary palpi with the last joint cylindric-oval. Antennæ crooked. Mandibles short.

GENUS XL. LORICERA. Latr.

CARABUS. Fabr. Marsh.

Antennæ incurved, the first joints differing in size and in proportion from the others. Mandibles with the back notched and unidentate. Thorax nearly orbicular. Neck distinct.

Sp. 1. *Aenea*. Elytra with punctured striæ; the fourth stria from the suture with three forææ.

Carabus pilicornis. Fabr. Oliv. Marsh.

Loricera aenea. Lat. Gen. Crust. et Ins. 1. Tab. 7, fig. 6.

Inhabits France, Germany, and England.

B. anterior tibiæ not notched on their internal edge.

a. Lip very short, not projecting beyond the first joint of the palpi. External base of the maxillæ not remarkably ciliated. Abdomen more or less thick.

GENUS XLI. CYCHRUS. Fabr. Payk. Latr.

CARABUS. De Geer, Oliv. Marsh.

TENEBRIO. Linn.

Mandibles narrow, very long, bidentate at their extremities. Elytra embracing the abdomen. Labial and external maxillary palpi with the last joint much compressed, concave and securiform, or rather spoon-shaped. Thorax somewhat cordate.

Sp. 1. *Rostratus*. Black, elytra sharply punctate-rugose.

Cychrus rostratus. Fabr. Latr.

Tenebrio rostratus. Linn.

Carabus rostratus. Marsh. Oliv.

Inhabits Europe. In England it is rather uncommon, but in Scotland it occurs very frequently under stones.

GENUS XLII. CALOSOMA. Web. Fabr. Latr.

CARABUS. Linn. De Geer, Oliv.

Mandibles neither very narrow or long. Thorax nearly orbicular. Abdomen nearly quadrate. Labial and external maxillary palpi with the last joint somewhat conic or triangular.

Sp. 1. *Sycophanta*. Violet-black; elytra gold or coppery green, with about sixteen punctured striæ on each, the intervals obsoletely intersected transversely, the fourth, eighth, and twelfth from the suture, with some impressed spots.

Carabus Sycophanta. Linn.

Calosoma Sycophanta. Fabr. Latr.

Inhabits the European woods. There are but few instances of its having occurred in this country, six specimens only being known to us that have been clearly ascertained to be British. Two of these from Ireland are preserved in the collection of Mr Sowerby; one in the collection of W. J. Hooker, Esq. of Halesworth; another in the museum of S. Wilkin, Esq. which was taken in the county of Norfolk with the preceding specimen; a fifth occurred in Devon, near Kingsbridge, which is now, with another specimen, in the collection of Dr Leach.

Calosoma Inquisitor of Fabricius is sometimes taken near London, and it has been taken by Dr Leach near Tavistock in Devonshire; but it must be esteemed a rare British insect. It is said sometimes to occur in plenty near Windsor, on the white thorn hedges, feeding on the larvæ of lepidopterous insects.

GENUS XLIII. CARABUS. Linn. Fabr. Oliv. Latr. Panz. Marsh.

Mandibles neither very narrow or long. Thorax cordiform, truncate, and notched behind. Abdomen ovate.

Obs. As the British species of this genus have been most sadly confused, we shall describe the species, for the purpose of correcting the errors of nomenclature, which Mr Marsham has tended not a little to increase.

Sp. 1. *Violaceus*. Black; margins of the thorax and elytra violet-copper; elytra finely rugulose, somewhat smooth; abdomen elongate oval.

Carabus violaceus. Linn. Fabr. Oliv. Marsh. Latr.

Inhabits Europe.

Carabus purpurascens is said to have been taken in Britain; but we have not been enabled to identify it with certainty.

Sp. 2. *Catenulatus*. Black; margins of thorax and elytra violet; thorax broader than long, deeply emar-

ginate behind; each elytron with about fourteen striae; the fourth, eighth, and twelfth from the suture interrupted; the intervals with a distinct somewhat rugose line; abdomen oval.

Carabus catenulatus. Scop. Fabr. Latr.

Carabus intricatus. Marsh. Oliv.

Inhabits the south of France, Germany, and Britain. It is sometimes found quite black, at other times with a tinge of fine violet. It is very plentiful in Ireland, Scotland, and England, especially in the two former countries.

Sp. 3. Intricatus. Black violet above, black beneath; thorax narrow, with nearly equal diameters; elytra with irregular striae, the intervals punctate-rugose; each elytron with three elevated catenulated lines.

Carabus intricatus. Linn. Latr.

Carabus cyaneus. Fabr. Panzer.

Inhabits Europe. Is common in Germany and Sweden, but is rare in France. There is but one instance of its having occurred in Britain: Dr Leach took a single specimen under a stone in a wood opposite the Virtuous-Lady Mine, on the river Tavy, below Tavistock in Devonshire, in the last week in May. It is singular, that Mr Marsham, (who has every opportunity of examining the Linnean cabinet,) should have confounded the former species with this, as it will in no way agree with the character.

Sp. 4. Nemoralis. Black; margin of the elytra and sides of the thorax violet; elytra obscure copper, rugose, with three longitudinal rows of excavated spots.

Carabus nemoralis. Illig. Latr.

Carabus hortensis. Oliv. Marsh. Fabr.

Inhabits France and Germany.

Sp. 5. Monilis. Brassy-green or violet-black above, black beneath; each elytron with about fourteen elevated lines, two in the middle more distinct than the rest; the fourth, eighth, and twelfth from the suture catenulated; abdomen elongate-oval.

Carabus monilis. Fabr. Latr.

Carabus catenulatus. Marsh.

Inhabits England, France, and Germany. It varies in sculpture, those lines on each side of the entire line being very frequently uninterrupted.

Sp. 6. Morbillosus. Brassy or black copper above, black beneath; each elytron with three ribs, one at the suture; the interstices with a catenulated line, and on each side of it, with a less distinct smooth punctate-rugose line; abdomen elongate-oval.

Carabus morbillosus. Fabr. Latr.

Carabus granulosus. Marsh.

Antennae quite black; thorax often or generally cupreous or coppery; intermediate tibiae with a reddish-tomentose line. It varies in colour, being sometimes violet, with the sides green, or entirely black-bronze.

Inhabits Europe, under stones.

Sp. 7. Arvensis. Coppery or black above; antennae altogether black; each elytron with fourteen elevated lines, three slightly notched transversely; the fourth, eighth, twelfth from the suture catenulated; abdomen oval.

Carabus arvensis. Fabr. Illig.

Inhabits Germany, Sweden, and England.

6. Lip projecting as far as the first joint of the palpi; exterior base of the maxillae distinctly ciliated; abdomen generally very flat.

GENUS XLIV. NEBRIA. Latr.

Carabus. Linn. Fabr. Marsh. Schönherr.

Lip nearly quadrate, not projecting as far as the labrum, nor tricuspidate at its extremity; labial palpi not

twice as long as the head; mandibles but little dilated externally.

* Back very much depressed.

Sp. 1. Complanata. Pale-yellowish; elytra paler, striated with two transverse bands, composed of black lines.

Carabus complanatus. Linn.

Carabus arenarius. Fabr. Oliv.

Nebria arenaria. Latr. *Gen. Crust. et Ins.* vol. i. p. 221. tab. 7. fig. 6.

Inhabits the sandy maritime shores of France, Germany, and South Wales.

Sp. 2. Brevicollis. Black shining antennae; palpi, tibiae, and tarsi, brown; elytra with punctured striae.

Carabus brevicollis. Fabr. Schönherr.

Carabus infidus. Rossi.

Carabus rugimarginatus. Marsh.

Nebria brevicollis. Latr.

Inhabits Europe; is found under stones and under the bark of trees.

Carabus Gyllenhalii of Schönherr, which was discovered as a native of Britain by Dr Leach, at the base of Ben Lomond in Scotland. Has since been taken in some plenty near Edinburgh, by the late Richard Rawlins, Esq. one of the most promising entomologists of our day. *Nebria sabulosa* has likewise been taken near Hull in Yorkshire, by W. Spence, Esq.

** Back convex. Gen. HELOBIUM, Leach's MSS.

Sp. 3. Multipunctata. Black-brassy above, black beneath; middle of each elytron with impressed dilated spots, in a double longitudinal series; the intervals somewhat catenated.

Carabus multipunctatus. Linn. Fabr. Oliv. Marsh.

Nebria multipunctata. Latr.

Helobium multipunctatum. Leach's MSS.

Inhabits the northern parts of Europe. In England it occurs near London occasionally, especially in Battersea-fields. It should be placed, in a natural series, next to ELAPHRUS, to which genus it approaches in habit and economy.

GENUS XLV. POGONOPHORUS. Latr.

Carabus. Linn. Fabr. Oliv. Marsh.

LEISTUS. Froelich, Clairville.

MANTICORA. Jurine.

Lip elongate, even to the labrum, the extremity with three spines; labial palpi twice as long as the head; mandibles with their external base much dilated.

Sp. 1. Caruleus. Blue above; antennae, mouth, tibia, and tarsi red-brown.

Carabus spinibarbis. Fabr. Panz.

Pogonophorus caruleus. Latr. *Gen. Crust. et Ins.* 1. tab. 7. fig. 4.

Inhabits England, France, and Germany.

II. Body short ovoid, nearly hemispherical; labial palpi inserted nearly on the superior side of the lip. (*Obs.* These insects live near the water, and prepare the way to the following tribe.) Anterior tibiae notched.

GENUS XLVI. OMOPHRON. Latr.

SCOLYTUS. Fabr. Clairville.

Carabus. Oliv.

Lip very small; labial palpi inserted on the superior margin of the lip.

Sp. 1. Limbatus. Pale-ferruginous; vertex of the head, a spot behind the thorax, a humeral spot on the elytra, and the suture with two bands of green.

Scolytus limbatus. Fabr.

Omophron limbatus. Latr.

Carabus limbatus. Oliv.

Inhabits France and Germany, in moist situations.

TRIBE III. DYTICIDES.

This tribe is at once distinguished from the *Carabici*, by the superior length of the hinder legs, which are formed for swimming.

I. Labial and external maxillary palpi filiform.

A. All the tarsi with five joints, the last of which is longest.

GENUS XLVII. DYTISCUS. Geoff. Illig. Latr.

DYTISCUS. Linn. Fabr. Oliv. Lam.

Scutellum distinct; anterior tarsi of the male patelliform; elytra of the female sulcated; external maxillary palpi with the last two joints equal.

Sp. 1. *Marginalis*. Ovale, olive-black above; luteous red beneath the scutellum, of the same colour with the elytra; clypeus, whole margin of the thorax, and border of the elytra, red clay-colour; bifurcatur of the sternum lanceolate.

Inhabits Europe.

Linnaeus considered the sexes of this insect as distinct species, under the names *Dytiscus semistriatus* and *marginalis*.

Dytiscus circumflexus of Fabricius, the *flavoscutellatus* of Latreille, is very abundant near London. It is distinguished from *marginalis* by its more elongate shape, by the bifurcate processes of the sternum being spine-shaped, and by the colour of the scutellum, which is invariably ferruginous.

GENUS XLVIII. COLYMBETES. Clairville.

DYTISCUS. Linn. Fabr. Gyll.

DYTISCUS. Latreille.

Scutellum distinct; anterior tarsi of the male dilated, but not patelliform; elytra of the female not sulcated; exterior maxillary palpi with the last joint longer than the one before it.

Sp. 1. *Bufustulatus*. Oval, depressed, black; finely striated above the elytra with impressed points, which are obsolete; antennæ labrum, two frontal spots; anterior tibiae and tarsi obscure red; eyes gray.

Dytiscus bifustulatus. Linn. Fabr.

Dytiscus bifustulatus. Latr.

Dytiscus carbonarius. Gyll.

Inhabits the European waters every where.

GENUS XLIX. LACOPHILUS. Leach.

DYTISCUS. Linn. Marsh. Gyll.

Scutellum, none. Antennæ, setaceous. Palpi, filiform.

Sp. 1. *Minutus*. Greenish-testaceous; legs yellowish.

Dytiscus Minutus. Linn. Marsh. Gyll.

Laccophilus Minutus. Leach.

Inhabits stagnant waters.

GENUS L. NOTERUS. Clairv. Latr.

DYTISCUS. Fabr. Marsh.

DYTISCUS. Latr.

Scutellum, none. Antennæ, with a fifth or seventh joint dilated. Labial palpi, bifurcate.

Sp. 1. *Crassicornis*. Oval, convex, brown; head and thorax ferruginous; elytra sprinkled with impressed dots; antennæ of the male thick.

Dytiscus crassicornis. Fabr. Oliv.

Dytiscus crassicornis. Latr.

Inhabits Germany and France. Thorax in each sex, with margined sides, with an impressed longitudinal line.

B. The four anterior tarsi, with four joints; no scutellum.

GENUS LI. HYDROPORUS. Clairville.

HYPHYDRUS. Illig. Duméril.

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DYTISCUS. Marsh.

Body oval; the breadth exceeding the height.

Sp. 1. *Fuscus*. Oval, plain, black, pubescent, finely punctulated; elytra fuscous; antennæ, feet, shoulders, and external margins of the elytra, rufous.

Dytiscus fuscus. Illiger, Latr.

Inhabits the waters of Europe.

GENUS LII. HYPHYDRUS, Illig. Clairville.

HYDRACHNA. Fabr.

DYTISCUS. Linn. Marsh.

Body nearly globose; the height exceeding the breadth.

Sp. 1. *Ferrugineus*. Obscure ferruginous, impunctate; the base of the elytra with an impression at the base of the suture.

Dytiscus ovatus. Linn.

Hydrachna gibba. Fabr.

Hyphidrus ferrugineus. Latr.

Inhabits Europe.

Dytiscus ovalis of Illiger, *Hydrachna ovalis* of Fabricius, differs from the above species, in having a more shining colour, in having the elytra darker and distinctly and widely punctured. May not the above be but sexual distinctions? Such is the opinion of Dr Leach, who could never find the sexes of each kind.

C. All the tarsi five-jointed; the first joint largest; with a scutellum.

GENUS LIII. PÆLOBIUS. Schönher, Leach.

HYGROBIA. Clairville.

HYPHYDRUS. Latreille.

DYTISCUS. Marsham.

HYDRACHNA. Fabricius.

Antennæ with the first joint longer and thicker than the rest.

Sp. 1. *Hermanni*. Black; head, transverse band on the thorax; base and border of the elytra and feet ferruginous.

Dytiscus Hermanni. Marsh. Oliv.

Hydrachna Hermanni. Fabricius.

Hyphidrus Hermanni. Latr. *Gen. Crust. et Ins.* 1. tab. 6. fig. 5.

Inhabits the marshes of France and England. The last segments of the abdomen, when rubbed against the elytra, produce a noise.

II. External maxillary and labial palpi subulate; hinder thighs covered at their base with a shield-shaped plate.

GENUS LIV. HALIPLUS. Latreille.

HOPLITUS. Clairville.

CNEMIDOTUS. Illiger.

DYTISCUS. Geoffroy, Marsham.

Scutellum, none; body oval, thick.

Sp. 1. *Impressus*. Yellowish or ferruginous; elytra with some obsolete abbreviated punctured striæ, and with blackish lines and spots.

Inhabits France, England and Germany.

TRIBE IV. GYRINIDES.

Internal maxillary palpi composed of one part. Antennæ very short. Eyes divide so as to appear as four. Four hinder feet compressed, foliaceous, formed for swimming.

GENUS LV. GYRINUS. Linn. Fabr. Latr. Gyll.

Sp. 1. *Nator*. Oval; elytra with punctured striæ; the inflexed margin testaceous.

Gyrinus Nator. Gyll.

Inhabits stagnant waters.

TRIBE V. BUPRESTIDES.

Mandibles with their extremities entire. Antennæ filiform or setaceous, often pectinated or serrated. Body convex, not jumping.

I. Palpi filiform.

GENUS LVI. BUPRESTIS. Linn. Fabr. Latr.

Antennæ filiform, serrated in both sexes. Thorax with the hinder margin applied to the base of the elytra. Body cylindric, linear.

Sp. 1. Biguttata. Green above, blue-green beneath; scutellum transversely impressed; apex of the elytra serrated; a white villose spot on each side of the suture, and three on the sides of the abdomen.

Buprestis biguttata. Fabr. Oliv. Marsh. Latr.

Inhabits France and Germany. In England it is very rare, but was once observed in very great abundance, by Dr Latham, in Darentwood, Kent.

GENUS LVII. TRACHYS. Fabr. Gyll.

Antennæ serrated and filiform. Thorax with the hinder margin lobed, and applied to the base of the elytra. Scutellum obsolete. Body short, ovate or triangular.

Sp. 1. Minuta. Coppery-brown above; front impressed; elytra with slightly elevated spaces, and transverse undulating bands of white hair.

Buprestis minuta. Linn. Marsh. Latr.

Trachys minuta. Gyll. Fabr.

Inhabits the nut-tree and elm.

GENUS LVIII. APHANISTICUS. Latreille.

BUPRESTIS. Fabricius.

Antennæ massive.

Sp. 1. Emarginatus.

Buprestis emarginatus. Fabr.

II. Palpi terminated by a thick joint.

GENUS LIX. MELASIS. Oliv. Fabr. Lam.

ELATER. Linn.

Tarsi with entire joints.

Sp. 1. Flabellicornis. Obscure blackish; antennæ, tibiae, and tarsi red-brown; head punctate; thorax rough, with elevated punctures, having an impressed dorsal line; elytra finely rugulose and striated.

Elater buprestoides. Linn.

Melasis flabellicornis. Oliv. Panz. Fabr.

Melasis buprestoides. Latr.

Inhabits Germany and the south of France. In England it has been once taken, by Mr John Curtis of Norwich, a most industrious entomologist.

GENUS LX. CEROPHYTUM. Latr.

Tarsi with the last joint bifid.

Sp. 1. Elateroides.

TRIBE VI. ELATERIDES.

Mandibles notched, or bifid at their extremities. Antennæ filiform. Body leaping. Hinder thighs with a trochanter.

GENUS LXI. ELATER. Linn. Fabr. Geof. De Geer, Fabr. Oliv. Lam.

Obs. This genus should be divided into several others, on the characters have not yet been developed. In Latreille's *Genera Crustaceorum et Insectorum*, we find several sections, of which we shall give some account. The last joint of the tarsi is not notched. The maxillary palpi much exserted.

The last joint of the antennæ with the apex so abruptly acuminate as to give the appearance of a twelfth joint.

Sp. 1. Ferrugineus. Antennæ serrated; colour black. Thorax, with the exception of the hinder margin and

elytra, red, finely punctuated, pubescent; elytra with punctured striae.

Elater ferrugineus. Linn. Fabr. Oliv. Panz. Marsh.

Inhabits rotten trees, especially willows. In Britain it is very rare. It sometimes occurs in Kent, varies in size, and occasionally is found with the thorax entirely black. This last variety is in Dr Leach's collection.

** Last joint of the antennæ oval or oblong, not abruptly acuminate.

1. Body not linear, but three times as long as broad; abdomen oblong-triangular.

A. Antennæ (of the male at least) pectinated or serrated.

Sp. 2. Castaneus. Antennæ of the male pectinated; colour black; head and thorax red-tomentose; elytra yellow punctate-striated; apex black.

Elated Castaneus. Linn. Fabr. Panz.

Inhabits Europe.

B. Antennæ simple; joints conic.

Sp. 3. Murinus. Black-fuscous, clouded with cinereous down; thorax bituberculate; antennæ and tarsi red.

Elater murinus. Linn. Fabr. Marsh.

Inhabits Europe. Is common on thistles.

2. Body linear, nearly four times longer than broad; thorax oblong-quadrate.

Sp. 4. Marginatus. Black; front retuse; antennæ, sides of the thorax, feet, anus, and hinder margins of the abdominal segments brownish-yellow; suture and outer margin of the elytra, black.

Elater Marginatus. Linn. Fabr. Oliv. Marsh.

Inhabits Europe. Is found on various herbaceous plants in fields.

TRIBE VII. TELEPHORIDES.

Tarsi with the last joint but one bifid. Antennæ filiform, composed of ten joints. Elytra soft, flexible. Thorax nearly quadrate, or semicircular.

GENUS LXII. ATOPA, Paykull, Fabricius.

CHRYSONELA. Linnæus.

CISTELA. Olivier.

CRIOCERIS. Marsham.

DASCILLUS. Latreille.

Maxillary palpi filiform, with the last joint somewhat cylindric; labial palpi not bifurcate. Body ovate. Feet all simple.

Sp. 1. Cervina. Black, with cinereous down; antennæ, feet, and elytra, pale-yellow.

Chrysomela cervina. Linnæus.

Atopa cervina. Paykull, Fabricius.

Dacillus cervinus. Latr. *Gen. Crust. et Ins.* i. 252. tab. 7. fig. 11.

Inhabits Europe.

GENUS LXIII. CYPHON. Fabricius, Paykull, Gyllenhal.

ELODES. Latreille.

Maxillary palpi filiform, the last joint somewhat cylindric. Labial palpi bifurcate. Body sub-ovate or round-ovate. Feet with their tibiae simple, and their thighs not thickened.

Sp. 1. Pallidus. Sub-ovate, pale-red, punctulated, pubescent, eyes, antennæ, with the exception of their base, apex of the elytra, and abdomen, blackish; thorax somewhat semicircular, transverse, lobate behind.

Cyphon pallidus. Fabricius.

Eloides pallidus. Latr. *Gen. Crust. et Ins.* i. 253. tab. 7. fig. 12.

Inhabits Europe in moist places.

Sp. 2. Fuscescens. Somewhat round-ovate, yellowish-

red-fuscous or blackish, pubescent; thorax short, transverse, anterior margin nearly strait; feet and base of the antennæ reddish.

Elodes fuscescens. Latreille.

Inhabits France, in Petit Genillii near Paris.

GENUS LXIV. SCIRTES. Illiger.

CYPHON. Paykull, Fabricius.

ELODES. Latreille.

CHRYSOMELA. Linn. Marsham.

Maxillary palpi filiform, the last joint somewhat cylindric; labial palpi, bifurcate. Body ovate, inclining to round, convex. Feet, with their tibiae, terminated with a strong spine. Hinder thighs thickened and formed for leaping.

Sp. 1. Hemisphærica. Black, smooth; thorax short, transverse, anterior margin somewhat concave; tibiae, tarsi, and base of the antennæ, pale fuscous.

Cyphon hemisphæricus. Fabr. Payk.

Elodes hemisphærica. Latreille.

Chrysomela hemisphærica. Marsham, Linn.?

Inhabits France, England, and Sweden.

GENUS LXV. CUPES. Fabricius, Latreille.

Palpi equal, the last joint truncate; maxillary palpi with their joints thick. Antennæ, cylindric, simple. Maxillæ, with a double process, the external linear, internal small. Mandibulæ with their points notched. Lip bifid. Body linear, solid, rigid. Feet short.

Sp. 1. Capitata. Obscure fuscous, head unequal, reddish-yellow.

Cupes capitata. Fabr. Latr. *Gen. Crust. et Ins.* 1. 255. tab. 8. fig. 2.

GENUS LXVI. DRILUS. Oliv. Lam. Latr.

PTILINUS. Fabr. Geoffroy.

CANTHARIS. Marsham.

Maxillary palpi with their apex acute; labial short, somewhat cylindric. Antennæ with their internal edge pectinated. Maxillæ with one process. Mandibles notched at their points. Body soft, anteriorly arcuate, inflexed.

Sp. 1. Flavescens. Black, pubescent, elytra yellowish.

Drylus flavescens. Oliv. Latr.

Cantharis serraticornis. Marsham.

Inhabits Europe. Is found in Darent Wood, Kent, amongst grass, in tolerable abundance.

GENUS LXVII. LYCUS. Fabr. Oliv. Lam.

CANTHARIS. Linn.

LAMPYLIS. Geoff. Marsh.

Mandibles with their entire end pointed. Antennæ compressed, more or less serrate, inserted near each other. Palpi of the maxillæ, with the last joint somewhat triangular, having their points broader. Head, with the mouth produced into a kind of rostrum. Maxillæ with one process. Elytra nearly of equal breadth. Thorax somewhat quadrate, the anterior margin transverse, strait.

Sp. 1. Minutus. Elytra with four elevated lines; thorax black, with the margins much elevated; last joint of the antennæ reddish.

Lycus Minutus. Gyllenhal.

Lampyris pucilla. Marsham.

Inhabits Sweden, Germany, and England, in oak trunks. It is certainly De Geer's *Lampyre rouge à corselet tout noir*. Vol. iv. p. 46.

GENUS LXVIII. ONALISUS. Geoff. Oliv. Fabr. Lam.

Mandibles with their apex pointed and entire. Antennæ approximate, the joints cylindric-conic; the second and third smallest. Maxillary palpi with the last joint cylindric-ovate, apex truncate. Head exerted. Maxillæ with one process. Thorax nearly quadrate, a

little narrower before, the hinder angles produced and sharp. Body hard.

Sp. 1. Suturaalis, black; thorax with a double excavation or fossula behind; elytra blood-red, with the suture black, deeply punctate-striate.

Omalisus suturalis. Oliv. Fabr. Latr.

Inhabits Germany.

GENUS LXIX. LAMPYRIS. Linn. Geoff. De Geer, Fabr. Oliv. Lam.

Mandibles pointed at their tips, sharp, and entire. Antennæ approximate, the joints cylindric and compressed, the third of the same length as the following joints, the second small. Head concealed by the thorax. Mouth small. Maxillæ with a double process. Maxillary palpi with the last joint triangular-ovate, compressed, the apex acute. Eyes very large. Body soft, of the male, with elytra and wings; of the female, apterous. Thorax semicircular.

Sp. 1. Spendidula. Oblong-brown; margin of the thorax livid-yellow, anteriorly with a transparent spot on each side; abdomen with the margins of the segments, anus and feet yellowish; breast reddish.

Lampyris splendidula. Linn. Latr.

Inhabits Europe; has never been found in Britain.

GENUS LXX. TELEPHORUS. Schæf. De Geer, Oliv. Lam. Latr.

CANTHARIS, Linn. Fabr. Marsh. Gyll.

Mandibles, with their apex acute and entire. Antennæ distant. Joints cylindric, elongate. Maxillæ bifid. Body soft. Palpi, with their last joint securiform. Elytra, the length of the abdomen.

Sp. 1. Fuscus. Cinereous-black, mouth, base of antennæ, thorax, back of the abdomen, sides of the belly and anus, red; thorax with a black spot.

Cantharis fusca. Linn. Fabr.

Telephorus fuscus. Latr.

Inhabits Europe in the spring and beginning of the summer.

GENUS LXXI. MALTHINUS. Latreille.

CANTHARIS. Linn. Fabr. Marsh.

TELEPHORUS. Oliv. De Geer.

Antennæ distant, joints elongate, cylindric. Maxillæ bifid. Mandibles with their points entire, and very sharp. Body soft. Palpi with their last joint ovate, acute. Elytra shorter than the abdomen. Head attenuated behind more or less.

Sp. 1. Ruficollis. Head not very much attenuated behind; thorax not broader than long, distinctly margined behind; body blackish; head black; the two first joints of the antennæ and thorax red; elytra with some obsolete striae towards the suture, the apex and two pectoral spots yellow; base of the feet, anterior thighs, and tibiae, and knees of the middle feet, fuscous; middle of the anus reddish.

Malthinus ruficollis. Latr.

Inhabits France.

Sp. 2. Marginatus. Head but little attenuated behind; thorax broader than long, margined all round; body blackish; base of the antennæ, whole margin of the thorax, and two pectoral spots, red-yellow; elytra somewhat smooth, yellow at their points; base of the feet and knees pale; abdomen with the sides and margins of the segments red-yellowish.

Cantharis biguttata. Panzer.

Inhabits France and Germany.

Sp. 3. Flavus. Head much attenuated behind; thorax not broader than long, margined nearly all round, the middle longitudinally impressed; body yellowish;

antennæ (base excepted,) vertex, and dorsal mark of the thorax, blackish; elytra with punctured striæ, yellow at their points.

Telephorus minimus. Olivier.

Malthinus flavus. Latr.

Inhabits France and England, in the oak.

Sp. 4. Collaris. Head much attenuated behind; thorax not broader than long, distinctly margined behind, and with a short impression; body yellowish; antennæ (base excepted,) head behind, middle of the thorax, blackish; elytra smooth, somewhat fuscous, base darker, apex yellow.

Inhabits France.

TRIBE VIII. MELYRIDES.

Tarsi with the last joint but one not bifid. Mandibles notched. Maxillæ bifid. Antennæ filiform, composed of ten joints. Elytra soft, flexible. Thorax quadrate, or semicircular.

GENUS LXXII. MELYRIS. Fabr. Oliv. Lam. Latr.

Head ovate, much inflexed under the thorax. Antennæ with the second and third joints nearly cylindrical, the former elongate; the fourth and following joints turbinate or conic. Tarsi with the outer nails beyond the middle beneath distinctly unidentate. Body oval. Thorax somewhat trapeziform, plain, narrower before.

Sp. 1. Viridis. Green, with three elevated lines on each elytron.

Melyris viridis. Fabr. Latr. Oliv.

Inhabits the Cape of Good Hope.

GENUS LXXIII. ZYGIA. Fabr. Oliv.

Head ovate, much inflexed under the thorax. Antennæ with the second and third joints somewhat cylindrical, more slender, the former elongate; the fourth and following joints dentate-serrated, compressed, somewhat transverse. Tarsi with the outer nails beneath under the apex obsoletely unidentate. Body oval. Thorax somewhat trapeziform, anteriorly narrower, the middle elevated.

Sp. 1. Oblonga. Red; head and elytra blue or blue-green.

Zigia Oblonga. Fabr. Latr. *Gen. Crust. et Ins.* 1. 264. tab. 8. fig. 3.

Inhabits Syria and the kingdom of Murcia in Spain.

GENUS LXXIV. DASYTES. Payk. Fabr. Latr.

MELYRIS. Oliv. Lam. Illig.

Head somewhat transverse, retracted within the thorax even to the eyes. Tarsi with nails apparently bifid. Antennæ with short turbinate joints, nearly as broad as long. Lip with the apex deeply notched, almost bifid. Body without papillæ.

Sp. 1. Ater. Oblong, black, widely punctate, hairy, the hairs black and cinereous. Head with a double impression in front, which is ovate and roughish.

Dasytes ater. Latr. Fabr.

Melyris ater. Olivier.

Inhabits Europe, amongst grass.

GENUS LXXV. MALACHIUS. Fabr. Oliv. Lam. Latr.

CANTHARIS. Linn. Marsh.

TELEPHORUS. Schæffer, De Geer.

Head somewhat transverse, retractile even to the eyes within the thorax. Tarsi with apparently bifid nails. Antennæ with conic or cylindrical-conic joints, longer than broad, in some few pectinate. Labium with apex entire, or scarcely notched. Body with two papillæ on each side, one under the anterior angle of the thorax, the other at the base of the abdomen.

Sp. 1. Æneus. Brassy-green; head anteriorly red-yellowish; elytra blood-red, with the base and half the suture brassy-green.

Malachus æneus. Fabr. Latr. Oliv. Gyll.

Cantharis ænea. Linn. Marsham.

Inhabits Europe.

GENUS LXXVI. HYLECÆTUS. Latr.

CANTHARIS. Linnaeus.

LYMEXYLON. Fabr. Oliv. Paykull.

Antennæ serrated, the fourth, fifth, and following joints nearly equal. Elytra covering the back of the abdomen. Thorax broader than long. Head vertical. Body linear cylindrical.

Sp. 1. Dermestoides. Pale red; eyes and breast black; or black elytra brown-black or testaceous with a black apex; antennæ, feet, and apex of the abdomen testaceous reddish.

Hylæcætus dermestoides. Latr.

Inhabits Germany.

The sexes of this insect seem to have been considered as distinct species. See Latr. *Gen. Crust. et Ins.* 1. 266.

GENUS LXXVII. LYMEXYLON. Fabr. Oliv. Payk. Latr.

CANTHARIS. Linn.

ELATEROIDES. Schæff.

Head vertical. Body linear cylindrical. Thorax longer than broad, nearly cylindrical. Elytra nearly covering the whole elytra. Antennæ simple, somewhat fusiform, the middle joints rather largest.

Sp. 1. Navale. Head black; thorax entirely or partly, elytra or their base testaceous; under part of the body and the feet yellowish.

Lymexylon navale. Fabr. Oliv. Latr.

Cantharis navalis of Linnaeus, who (as we have already mentioned in our history of entomological writers) wrote a dissertation on this destructive insect. The male, Fabricius has considered as distinct, under the title of *Lymexylon flavipes*.

Inhabits in the oak of Europe, which it destroys.

GENUS LXXVIII. ATRACTOCERUS. Palissot-Beauvois, Latr.

NECYDALIS. Linn.

LYMEXYLON. Fabr.

Head vertical. Body linear, cylindrical. Thorax nearly quadrate. Elytra very short. Antennæ simple, somewhat fusiform, the middle joints somewhat largest.

Sp. 1. Necydaloides. Head and thorax fuscous, with a longitudinal yellowish line.

Atractocerus necydaloides. Palissot-Beauvois, Latr.

Necydalis brevicornis. Linn.

Lymexylon abbreviatum. Fabr.

Inhabits Guinea.

TRIBE IX. TILLIDES.

Antennæ thicker at their extremities, serrated in some, solid in others. Elytra covering the whole abdomen. Body cylindrical. Thorax narrow behind.

FAMILY I. Tillida.

Tarsi, with the first joint very apparent, longer than the one before it.

GENUS LXXXIX. ENOPLIUM. Latreille.

TILLUS. Oliv. Panz. Fabr.

DERMESTES. Rossi.

Palpi filiform. Antennæ, with the three last joints much dilated, serrated. Thorax nearly quadrate.

Sp. 1. Serraticorne. Black. Elytra testaceous.

Dermestes dentatus. Rossi.
Tillus serraticornis. Olivier.
Enophium serraticorne. Latreille.
 Inhabits Italy.

Sp. 2. Weberi. Black. Thorax red. Elytra blue.
Tillus Weberi. Fabr.

Enophium Weberi. Latreille.
 Inhabits Germany.

GENUS LXXX. *TILLUS*. Oliv. Fabr. Marsh. Latr.
CHRYSOMELA. Linnæus.

CLERUS. Fabricius, Olivier.

Maxillary palpi filiform. Labial palpi securiform.
 Antennæ nearly completely serrated. Thorax cylindric,
 or somewhat cordate.

* Thorax cylindric.

Sp. 1. Elongatus. Black, villous. Thorax red, black
 before.

Tillus elongatus. Fabr. Marsh. Oliv. Latr.

Chrysomela elongata. Linnæus.

Inhabits rotten trees.

T. ambulans is a mere variety of this species.

** Thorax subcordate.

Sp. 2. Unifasciatus. Black, pubescent. Elytra red at
 their base, with a white transverse band in the middle.

Clerus unifasciatus. Fabr. Oliv.

Tillus unifasciatus. Latr.

Inhabits France, Germany, and England.

GENUS LXXXI. *THANASIMUS*. Latreille.

CLERUS. Geoff. De Geer, Fabr. Oliv.

ATELABUS. Linnæus.

CLEROIDES. Schæffer.

Maxillary palpi filiform. Labial palpi securiform.

Antennæ with their extremities thick, and not serrated.
 Thorax somewhat cordate.

Sp. 1. Formicarius. Black. Thorax and base of the
 elytra red. Elytra, with two white transverse bands.

Atelabus formicarius. Linnæus.

Clerus formicarius. Fabricius, Olivier, Marsham.

Clerus fasciatus. Fourcroy.

Inhabits Europe in trees.

FAMILY II. *Clerida*.

Tarsi, with the first joint very short, the upper part
 concealed by the base of the second articulation.

GENUS LXXXII. *OPILUS*. Latreille.

ATELABUS. Linnæus.

CLERUS. Geoffroy, De Geer, Olivier.

NOTOXUS. Fabricius.

EUPOCUS. Illiger.

Palpi securiform. Antennæ with the ninth and tenth
 joints obconic, the last oval, obliquely truncate. Eyes
 not notched. Thorax conic-cylindric, narrower behind.

Sp. 1. Mollis. Fuscous, villous. Base and apex of the
 elytra, and a middle transverse band, with the under
 part of the thighs yellowish gray. Abdomen red.

Notoxus mollis. Fabricius.

Clerus mollis. Oliv. Marsh.

Eupocus mollis. Illiger.

Atelabus mollis. Linnæus.

Opilus mollis. Latreille.

Inhabits Europe, under the bark of trees, especially
 of willows, eating the larvæ of other insects.

GENUS LXXXIII. *CLERUS*. Geoff. Oliv. Lam. Latr.

ATELABUS. Linnæus.

TRICHODES. Herbst, Fabricius.

Maxillary palpi terminated by an obconic joint. Labial
 palpi, with the last joint securiform. Antennæ, with the
 three last joints forming an oblong triangular mass, ex-

ternally rounded, internally acuminate. Eyes notched.
 Thorax conic-cylindric.

Sp. 1. Apiarius. Blue, hairy. Elytra red, with three
 transverse black blue bands.

Atelabus apiarius. Linnæus.

Trichodes apiarius. Fabricius.

Clarion aptuore. De Geer, Geoff.

Inhabits the nests of bees. Mr Marsham has introdu-
 ced this into the British Fauna, apparently without the
 least authority.

GENUS LXXXIV. *NECROBIA*. Latreille, Olivier.

DERMESTES. Linnæus.

CLERUS. Geoffroy, De Geer, Marsham.

CORYNETES. Paykull, Fabricius.

Palpi terminated with an obconic joint. Antennæ, with
 the three last joints forming an oblong triangulate mass,
 obtuse both externally and internally.

Sp. 1. Ruficollis. Blue-black; thorax and base of
 elytra red.

Dermestes ruficollis. Linn.

Corynetes ruficollis. Fabr.

Inhabits Europe.

TRIBE X. SILPHIDES.

Antennæ gradually thickening towards their extremi-
 ties, or terminated by a solid or perfoliated club. Elytra
 covering the greater portion of the abdomen. Body
 oval, or paralleloiped.

FAMILY I. *Silphida*.

Palpi very distinct. Mandibles, with their apex entire,
 GENUS LXXXV. *NECROPHAGUS*. Fabr. Oliv. Lam.

SILPHA. Linn. De Geer, Marsh.

DERMESTES. Geoffroy.

Antennæ not much longer than the head, terminated
 abruptly in a perfoliated knob. Elytra truncated in a
 straight line, the external margin not canalled or keeled.
 Body long, quadrate.

Sp. 1. Spinithes. Black. Antennæ ferruginous at their
 points. Elytra with their external margin, and a double
 transverse undulated band of orange. Trochanters of
 hinder thighs produced into a spine.

Inhabits France and England.

Necrophorus vespillo is readily distinguished from this
 species, by not having the trochanters produced into a
 spine.

GENUS LXXXVI. *SILPHA*. Linn. Fabr. De Geer,
 Oliv. Lam. Latr. Marsh.

PELTIS. Geoffroy.

SILPHA, NECRODES, OICEOPTOMA, THANATOPHILUS.
 Leach.

Antennæ a little longer than the thorax. Elytra with
 an external margin. Body more or less oval. Maxil-
 lary palpi terminated by a joint, thinner than the one
 before it.

* Body elongate, oval. Thorax orbicular. Apex of
 elytra obliquely truncate. Hinder thighs of the
 male thicker than the rest.

GENUS *NECRODES*. Wilkin's MSS. Leach.

Obs. Kirby, Spence, Leach, and Wilkin, about the
 same time, considered this section as constituting a pe-
 culiar genus. We have adopted that name proposed by
 Mr Wilkin, as preferable to any other proposed by the
 above gentlemen.

Sp. 1. Littoralis. Black. Antennæ, with the three last
 joints ferruginous. Elytra with three elevated lines, the
 two external ones connected by a tubercle. Hinder tibiae
 of the male arcuate; thighs of the same sex toothed.

Silpha littoralis. Linn. Fabr. Latr. Oliv. Marsh.

Necrodes littoralis. Leach.

Inhabits dead bodies, especially on the borders of lakes, or on the shores of the sea.

Sp. 2. Curtisi. Black. Antennæ, with the three last joints ferruginous. Elytra with three elevated lines, the two external ones connected by a tubercle. Hinder tibiae of the male straight; thighs of the same sex not dentate.

Necrodes curtisi. Leach.

Inhabits Britain with the other species, but is more abundant, and is not so large by one half.

** Body oval. Thorax nearly semicircular, transverse, emarginate before. (Elytra of the female entire.)*

Antennæ with the club abrupt, distinct.

GENUS OICHOPTOMA. Leach.

Sp. 3. Thoracica. Black. Thorax unequal, ferruginous, somewhat silky. Each elytron with three elevated lines.

Silpha thoracica. Linn. Fabr. Latr. Marsh.

Inhabits Europe, in dead animals and putrid fungi.

*** Body oval. Thorax nearly semicircular, truncate in front. Antennæ with a gradually formed club.

Sp. 4. Obscura. Black, dull above, finely punctate, shining beneath. Thorax smoothly punctate, the punctures small and close. Each elytron with three elevated straight lines.

Silpha obscura. Linn. Latr. Marsh.

Inhabits Europe. Is very common on path ways in the spring and summer.

GENUS LXXXVII. AGYRTES. Frölich, Latreille.

MYCETOPHAGUS. Fabricius, Paykull, Panzer.

Antennæ a little longer than the thorax. Palpi maxillary, with the last joint thicker than the preceding joint.

Sp. 1. Castaneus. Shining, smooth, mouth and soles of the feet villose. Head and thorax black, smooth, widely and minutely punctulated. Mouth, antennæ, elytra, and feet, deep castaneous. Scutellum triangular, punctulated at the base, smooth at the apex, sides equal. Elytra striated, the striae punctated, ten in each. Body beneath brown black, apex of the abdomen paler. Feet villose. Tibiæ with little spines and ciliæ. Length two lines and a quarter.

Agyrtes castaneus. Frölich, Latreille.

Mycetophagus castaneus. Fabricius, Paykull.

Mycetophagus spinipes. Panzer.

Inhabits France, Germany, England, and Sweden.

FAMILY II. Nitidulida.

Palpi very distinct. Mandibles notched at their extremities.

GENUS LXXXVIII. SCAPHIDIUM. Oliv. Payk. Fabr. Latr. Marsh.

Antennæ, with an abrupt club composed of five somewhat hemispheric joints. Body acuminate at each extremity. Elytra truncated. Palpi filiform. Scutellum distinct.

Sp. 1. Quadrimaculatum. Body black, shining. Thorax somewhat coarctate on each side behind. Elytra widely punctured, with two blood red spots on each. Tibiæ striated.

Scaphidium quadrimaculatum. Fabr. Oliv. Paykull, Marsh. Latr.

Inhabits fungi and rotten wood, in Germany, France, and England.

GENUS LXXXIX. SCAPHISOMA. Leach.

SCAPHIDIUM. Fabricius, Latreille, Olivier.

Antennæ, with a club composed of five somewhat oval joints. Body acuminate at each extremity. Elytra truncated. Palpi filiform. Scutellum none.

Obs. The hinder margin of the thorax at the middle produced into an angle.

Sp. 1. Agaricinum. Body black, shining, very smooth. Antennæ, apex of the elytra, and feet, pale brown.

Scaphidium agaricinum. Fabr. Latr. Oliv. Panzer.

Scaphisoma agaricina. Leach's MSS.

Inhabits the *Boletus versicolor*, and other fungi.

GENUS XC. CHOLERA. Latreille, Spence.

CATOPS. Fabricius, Paykull, Gyllenhal.

PTOMOPHAGUS. Illiger.

MORDELLA. Forster, Marsham.

HELOPS. Panzer.

CISTELA. Olivier, Fabricius.

LUPERUS. Frölich.

DERMESTES. Rossi.

Antennæ straight, with a five-jointed club. Maxillary palpi with the last joint subulate, conic. Labial palpi with last joint obtuse.

Obs. This genus has afforded the subject of a learned and interesting monograph, by W. Spence, Esq. published by the Linnæan Society in the eleventh volume of their Transactions, to which we refer the reader for descriptions of the species.

Sp. 1. Oblonga. Narrow, oblong. Thorax narrower behind, the hinder angles obtuse, the middle slightly foveolated. Antennæ somewhat filiform.

Cistela angustata. Fabricius.

Choleva oblonga. Latreille, Spence.

Catops elongatus. Paykull, Gyllenhal.

Ptomophagus rufescens. Illiger.

Mordella picea. Marsham.

Laperus cisteloides. Frölich.

Inhabits moss, and under stones.

GENUS XCI. MYLÆCHUS. Latreille.

CATOPS. Paykull.

CHOLEVA. Spence.

Antennæ incurved, shorter than the thorax, the basal joints distinctly thicker than the rest; club five-jointed, the joints transverse. Palpi of the maxilla, with the last joint subulate. Labial palpi, with the last joint obtuse.

Sp. 1. Brunneus. Oblong-ovate, black-brown, finely but widely punctate, slightly pubescent.

Catops brevicornis. Paykull.

Mylæchus Brunneus. Latreille, *Gen. Crust. et Ins.* vol. ii. p. 30. tab. 8. fig. 11.

Choleva brunnea. Spence.

Inhabits France, Sweden, and England, in which latter country it has occurred but twice.

GENUS XCII. CRYPTOPHAGUS. Herbst, Paykull, Gyllenhal.

Irs. Olivier, Latreille.

DERMESTES. Fabricius, Scopoli, Panzer.

Body depressed, back plain. Tarsi with elongate slender joints. Antennæ with a compact three-jointed club.

Sp. 1. Cellaris. Testaceous ferruginous, widely punctate, pubescent. Thorax finely denticulated, on each side distinctly unidentate, anterior angles dilated, rounded, ending behind in an obsolete tooth.

Irs cellaris. Olivier, Latreille.

* The genus *THANATOPHILUS* of Leach, which contains *Silpha sinuata* of Fabricius, differs from this division merely in having the apex of the elytra of the female deeply notched; we have therefore not adopted it.

Dermestes cellaris. Scopoli.

Cryptophagus cellaris. Paykull, Gyllenhal.

Cryptophagus crenatus. Herbst.

Dermestes fungorum. Panzer.

Inhabits houses. It varies with black elytra, having the shoulders ferruginous.

GENUS XCIII. ENGIS, Paykull, Fabricius, Gyllenhal.

IPS. Herbst.

EROTYLUS. Olivier.

DACNE. Latreille.

Body depressed, back plain. Antennæ with a three-jointed, much perfoliated club. Tarsi with the three first joints short.

Sp. 1. *Humeralis*. Elliptic, black, shining, punctate; antennæ, head, thorax, humeral spot on the elytra and feet red, approaching to blood-red.

Engis humeralis. Paykull, Fabricius, Gyllenhal.

Ips humeralis. Herbst.

Dacne Humeralis. Latreille.

Inhabits Europe, under the bark of trees and in Boletii. *Nitidula rufifrons* of Marsham is scarcely distinct.

GENUS XCIV. CALOBICUS. Latreille.

NITIDULA. Rossi.

DERMESTES. Fabricius, Paykull.

Body depressed; back plain. Antennæ with a two-jointed club. Mouth covered with a hood.

Sp. 1. *Marginalis*. Elongate-oval, obscure blackish; antennæ, margins of the head, thorax, and elytra, fuscous-ferruginous; elytra with punctured striæ.

Nitidula hirta. Rossi.

Colobicus marginalis. Latreille.

Inhabits the south of France, under the bark of trees. Length two lines.

GENUS XCV. THYMALUS. Latreille.

PELTIS. Kugellan, Illiger, Paykull, Fabricius.

OSTOMA. Laicharting.

Body depressed; back plain. Tarsi with the third joint neither bifid nor dilated. Palpi terminated by a thick joint. Mandibles prominent. Antennæ with a three-jointed club.

Sp. 1. *Ferrugineus*. Fuscous-castaneous, with a paler border; thorax with impressed punctures; elytra with six elevated lines on each, three of which are punctulated; the interstices with a double series of excavated punctures.

Peltis ferruginea. Kugellan, Fabricius, Illiger.

Thymalus ferrugineus. Latreille.

Inhabits northern Europe, under the bark of trees.

GENUS XCVI. NITIDULA. Linn. Fabr. Payk. Oliv. Latr.

Mandibles prominent. Body short, depressed; back plain. Thorax generally broad. Antennæ with the third joint twice as long as the second; club abrupt and orbicular, composed of three joints.

Sp. 1. *Bihustulata*. Body elliptic, brown-blackish; thorax emarginate; elytra with a red spot on each.

Nitidula bihustulata. Linn. Latr. Fabr.

Inhabits dead carcasses and Boletii.

GENUS XCVII. IPS. Fabricius, Herbst, Gyllenhal.

NITIDULA. Latreille.

Mandibles prominent, strong, and much bent at their points. Body elongate-quadrate; back plain. Thorax transverse-quadrate. Antennæ with the third joint twice as long as the second; club abrupt and orbicular, composed of three joints.

Sp. 1. *Ferruginea*. Red-castaneous punctate; the punctures of the elytra running together at the suture; mandibles black at their points.

Ips ferruginea. Fabr. Payk. Panz.

Nitidula linearis. Latreille.

Inhabits Europe.

GENUS XCVIII. BITURUS. Latr.

IPS. Olivier.

DERMESTES. Geoffroy, De Geer, Fabricius.

Antennæ with the third joint not twice as long as the following joint; club composed of three joints. Mandibles prominent. Body oval or oblong; back plain. Thorax broad behind, with the angles pointed. Elytra covering the abdomen.

Sp. 1. *Tomentosus*. Antennæ shorter than the thorax; thorax short, the posterior angles broadly depressed, reflected; body oval, black, with a reddish-yellow down; antennæ and feet yellow-red.

Dermestes tomentosus. Fabr. Illig. Payk.

Dermestes fumatus. Herbst.

Bycturus tomentosus. Latreille.

Inhabits Europe, on the flowers of the ranunculus, rose, &c.

GENUS XCIX. CATERETES. Herbst, Illiger.

BRACHYPTERUS. Kugellan.

DERMESTES. Linn. Fabr.

STRONGYLUS. Herbst.

NITIDULA. Olivier.

Antennæ with the third and following joint scarcely different in length; club compressed, perfoliate; obconic, composed of three joints. Thorax rounded, without angles behind. Elytra very short. Body depressed, back plain. Mandibles prominent.

FAMILY III. *Micropeptida*.

Labial palpi scarcely distinct. Antennæ placed in an excavation of the thorax. Mandibles with their apex arcuate and acute.

GENUS C. MICROPEPLUS.

Antennæ with the club composed of but one joint. Maxillary palpi with the last joint subulate.

Sp. 1. *Porcatus*. Black; elytra cancellated.

Staphylinus porcatus. Paykull.

Inhabits sandy ground.

TRIBE XI. STAPHYLINIDES*.

Antennæ gradually thickening towards the extremities, or terminated by a perfoliated mass. Elytra covering about half the abdomen, or less, but very rarely more. Body long, and more or less narrow.

DIVISION I.

Anterior margin of the head (bearing the mandibles) immediately behind the eyes, terminated by a transverse straight line, (or with a line slightly bent in the middle,) not rounded or crooked at their sides. Antennæ inserted below the middle part of the above-mentioned line. Thorax long. Neck distinct. Body very long and narrow. Elytra covering a very small portion of the abdomen.

GENUS CI. ASTRAPÆUS. Gravenherst, Latreille.

STAPHYLINUS. Fabricius, Olivier, Rossi.

Palpi terminated with a joint nearly securiform. Antennæ nearly filiform, distinctly longer than the head,

* Gravenherst has written an admirable monograph on this tribe, entitled *Monographia Coleopterorum Micropterorum*. Kirby, the illustrious author of *Monographia Spum Anglie*, is about to publish a paper on this interesting tribe of insects.

with somewhat globose-conic joints. Lip slightly emarginate.

Sp. 1. Ulmi. Black, shining; mouth, two basal joints of the antennæ, nearly the whole of the last joint but one of the abdomen, the elytra (the suture excepted), reddish-brownish; thorax very smooth, with one or two impressions; elytra with four dots arranged longitudinally in their middle.

Astrophæus ulmi. Gravenherst, Latreille.

Staphylinus ulmi. Rossi.

Staphylinus ulmineus. Fabricius.

Inhabits Italy and the south of France under the bark of the elm.

GENUS CII. STAPHYLINUS. Linn. Fabr. Latr. Oliv. Lam. Graven.

Palpi filiform. Antennæ towards their extremities distinctly thicker, moniliform, the last joint obliquely truncate or emarginate. Lip deeply emarginate.

Sp. 1. Erythropterus. Black; the greater part of the antennæ, elytra, and feet, red; hinder margins of the head and thorax, the breast and a double series of spots on each side of the abdomen, golden yellow tomentose.

Staphylinus erythropterus. Linn. Latr. Fabr. Grav.

Inhabits Europe, in dung.

Sp. 2. Politus. Black; head and thorax brassy-black; head ovate, narrower than the thorax, impressed with some distant dots: thorax with six or eight impressed dots, placed in a double longitudinal series; elytra dark-er, nearly smooth.

Staphylinus politus. Gravenherst, Latreille.

Inhabits dung.

GENUS CIII. LATHROBIUM. Gravenherst, Latreille.

PÆDERUS. Gravenherst, Fabricius, Olivier.

STAPHYLINUS. Linnæus, Geoffroy.

Palpi subulate, with the last joint acicular and minute. Antennæ nearly filiform, joints nearly conic, those towards the extremities more rounded, and somewhat globose. Lip deeply notched, nearly bilobate.

Sp. 1. Elongatum. Pubescent, minutely but widely punctate, black, shining; with the mouth, antennæ, and apex of the elytra and feet, red-brown; head ovate; antennæ about the length of the thorax, with the outermost joints nearly globose; thorax elongate-quadrate, with obtuse angles, the breasts equal, the middle dorsal line smooth.

Lathrobium elongatum. Gravenherst, Latreille.

Staphylinus elongatus. Linnæus.

Pæderus elongatus. Fabricius.

Inhabits putrid vegetables, and under stones.

Sp. 2. Ruficornæ. Black-fuscous, pubescent, widely but finely punctate; mouth, antennæ and thorax, red; elytra and feet yellow-red; antennæ moniliform; thorax quadrate; dorsal line smooth.

Pæderus bicolor. Gravenherst, Olivier.

Lathrobium ruficornæ. Latreille.

Inhabits France under stones.

DIVISION II.

Anterior margin of the head circumscribed by a curved line, the antennæ inserted on this side of the level of the line. Elytra covering half the abdomen or more. Thorax generally longer than broad, or with equal diameters.

Subdivision 1.

Maxillary palpi longer than the labial one, with their extremities thickest; the last joint obscure. Body linear. Head with a distinct neck. Thorax orbicular or cylindrical.

GENUS CIV. PÆDERUS. Fabr. Oliv. Latr. Payk. Lam. Graven.

STAPHYLINUS. Linnæus, Geoffroy, De Geer.

Antennæ inserted before the eyes, insensibly thickening towards their extremities; the third joint very long. Eyes moderately large.

Sp. 1. Rhiparius. Body red, shining; head, antennæ (four basal joints excepted), apex of the abdomen, and knees, black; elytra blue, with wide impressed dots.

Pæderus rhiparius. Fabr. Latr. Oliv. Graven.

Staphylinus rhiparius. Linnæus.

Inhabits banks, and beneath stones.

GENUS CV. STENUS. Latr. Cuv. Lam. Fabr. Payk. Grav.

STAPHYLINUS. Linn. Marsh.

PÆDERUS. Olivier.

Antennæ inserted at the interior margin of the eyes, abruptly thicker at their extremities, the inferior joints cylindrical, the outer ones conic-globose. Eyes nearly globose, large.

Sp. 1. Biguttatus. Black, with grey down, minutely punctate, somewhat rugulose; vertex of the head with an elevated line; thorax behind with an impressed little line; each elytron with a reddish round spot.

Staphylinus guttatus. Linnæus, Marsham.

Stenus Biguttatus. Fabr. Payk. Grav. Latr.

Inhabits Europe in moist places near water, as on the banks of streams or ponds.

Subdivision 2.

Maxillary palpi not much longer than the labial, not thicker at their extremities; the last joint distinct.

A. Mandibles strong, with their internal edge with one or more teeth. Head free.

a. The second, third, and fourth joints of the tarsi very short; the last joint as long as the others united.

GENUS CVI. OXYPORUS. Fabr. Oliv. Lam. Grav. Latr.

STAPHYLINUS. Linn. Geoff. De Geer.

Antennæ scarcely longer than the head, terminated by a perfoliated mass. Maxillary palpi filiform; the labial ones terminated by a very large lunate joint. Thorax semicircular. Head broader than the thorax.

Sp. 1. Rufus. Red; suture and apex of the elytra, anus and breast, black.

Oxyphorus rufus. Fabr. Latr. Grav. Oliv.

Staphylinus rufus. Linn.

Inhabits boleti and other fungi.

GENUS CVII. OXYTELUS. Grav. Latreille.

Antennæ somewhat broken, incurved, thicker externally, with the last joints foliate above; the extreme joint globose ovate; the basal joint very long conic. Palpi subulate. Anterior tibiae very spiny, with their extremities notched or narrowed externally, with their tarsi capable of being reflected from their sides.

Sp. 1. Carinatus. Black, shining, distinctly and widely impresso-punctate, front unequal, somewhat inclined to be rugulose, the anterior space between the eyes rather smooth; thorax impressed on each side; the middle with three grooves and four carinae; the two middle ones joining together; feet blackish; tibiae with very short little spines.

Oxytelus carinatus. Gravenherst, Latreille.

Inhabits the dung of men and other mammals.

GENUS CVIII. ONALUM. Gravenherst, Latreille.

STAPHYLINUS. Geoffroy, Fabricius, Olivier.

Palpi filiform. Antennæ thicker towards their extre-

mities, the last joints rounded, somewhat perfoliate. Thorax transverse quadrate, the anterior angles rounded.

Sp. 1. Rivulare. Blackish, punctate; base of the antennæ and feet pale brown; head with two impressions between the eyes; thorax marginated, impressed at the hinder angles, back with two grooves; elytra twice as long as the thorax; obscure brown.

Omalium rivulare. Graven. Latr.

Staphylinus rivularis. Paykull.

Inhabits France and England.

b. Tarsi with elongate joints, the last joint shorter than the others united.

GENUS CIX. ANTHOPHAGUS. Graven.

STAPHYLINUS. Fabr. Paykull, Olivier.

CARABUS. Panzer, Marsham.

Antennæ nearly filiform, the second and following joints obconic. Palpi filiform. Thorax elongate, somewhat cordiform, narrow and truncate behind.

Sp. 1. Punctulatus. Black fuscous, somewhat smooth, minutely and finely punctate; antennæ and feet obscure rufous.

Carabus dimidiatus. Panzer.

Carabus staphylinoides. Marsham.

Lestiva punctulata. Latreille, *Gen. Crust. et Ins. i. p. 297, tab. 9. fig. 1.*

Inhabits France and England; in the last country it must be considered as of very rare occurrence.

GENUS CX. PROTEINUS. Latreille.

Antennæ evidently thicker towards their extremities. Palpi subulate. Thorax transverse.

Sp. 1. Brachypterus. Depressed, flat, black, shining, smooth, silky above; mandibles, basal joint of the antennæ, and feet, brown red; head a little narrower than the thorax, triangular; thorax short, smooth, anteriorly a little narrower, the sides somewhat rounded, very slightly margined, the hinder margin twice as broad as long, the angles slightly prominent and somewhat reddish; scutellum very small; elytra elongate quadrate, externally margined; the hinder and external margins rounded; abdomen with the four last joints naked.

Proteinus brachypterus. Latr.

Inhabits France and England.

B. Mandibles without denticulations on their internal edge. Head inserted into the thorax more or less.

a. Antennæ wide apart, inserted before the eyes; the fifth and following joints, longer than broad. Tibiæ spinose.

GENUS CXI. TACHINUS. Graven. Latr.

OXYPORUS. Fabricius.

STAPHYLINUS. Linné, Geoffroy, Olivier, Paykull.

Palpi filiform.

Sp. 1. Rufipes. Black, shining, smooth; antennæ fuscous, elytra and feet generally brown; external apex of the elytra paler.

Staphylinus rufipes. Paykull.

Tachinus rufipes. Grav. Latr.

Oxyphorus rufipes. Fabricius?

Inhabits the dung of oxen and horses.

GENUS CXII. TACHYPORUS. Grav. Latr.

STAPHYLINUS. Linn. Oliv. Geoff. Marsh.

OXYPORUS. Fabricius.

Palpi subulate.

Sp. 1. Chrysomelinus. Black, shining, smooth; thorax, elytra (base excepted), and feet, red yellow; thorax somewhat transverse; abdomen with the extremity truncate.

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Tachyporus chrysomelinus. Grav. Latr.

Oxyphorus chrysomelinus. Fabr.

Staphylinus chrysomelinus. Linn. Marsh.

Inhabits flowers, the roots of grass, and moss.

b. Antennæ more or less approximate, inserted at the anterior internal margin of the eye, fifth and following joints broader than long. Tibiæ not spiny.

GENUS CXIII. ALEOCHARA. Knoch, Gravenherst, Latreille.

STAPHYLINUS. Linn. Fabr. Geoff. De Geer, Oliv. Marsh.

Head with the hinder part received into the thorax.

Obs. This genus certainly should be divided into three or more genera.

* Head about as broad as the thorax, somewhat triangular; neck distinct, but not very slender; thorax quadrate, with rounded angles in some; somewhat orbiculate, as broad as the elytra behind in others.

Sp. 1. Canaliculata. Red fuscous, feet paler; head and the two last joints, save one of the abdomen, black; elytra together transverse quadrate; back of the thorax excavated with an impressed longitudinal line in the middle.

Aleochara canaliculata. Grav. Latr.

Staphylinus canaliculatus. Fabr.

Inhabits sandy banks and under stones.

** Head globose, behind removed from the thorax with a very distinct slender neck; thorax somewhat globose, or somewhat cordate, rounded before, narrow, truncated behind, and narrower than the elytra.

Sp. 2. Impressa. Reddish, head black, thorax with three lines, and with two impressions behind; base of the elytra with two little impressed lines.

Aleochara impressa. Grav. Latr.

Inhabits Agarics and Boleti.

GENUS CXIV. LOMECHUSA. Grav. Latr.

Head disengaged from the thorax behind, with an inconspicuous neck or none. Thorax transverse, the sides rounded. Antennæ distinctly perfoliate.

Sp. 1. Bifunctata. Black, somewhat silky, thorax convex; elytra conjoined transverse quadrate, with a blood red spot in each; feet, hinder margin of the posterior segments of the abdomen, and anus, red brown.

Aleochara bifunctata. Latreille.

Inhabits horse dung.

Obs. In a natural arrangement of the genera, *Pselaphus* should probably be placed after *Lomechusa*, but in the present infant state of our knowledge, we must keep that genus in the section DIMERA.

TRIBE XII. SCYDMENIDES.

Body ovoid, rounded at each extremity. Palpi very long. Tarsi short. Elytra hard, covering the abdomen. Antennæ gradually thicker towards their extremities.

GENUS CXV. MASTAGUS. Hoffmannsegg, Latreille, Hellwig.

PRINUS. Fabricius, Olivier.

Antennæ filiform, (or nearly so), composed of long joints, geniculated. Maxillary palpi with the two last joints forming an oval mass.

Sp. 1. Pagnalis. Black.

Inhabits Portugal; was discovered by Count Hoffmannsegg. In Dr Leach's possession there are two specimens which were said to have been taken in Britain.

GENUS CXVI. SCYDMENUS. Latreille.

PSELAPHIUS. Illiger, Paykull.

ANTHICUS. Fabricius.

Antennæ gradually thickening towards their extremities. Maxillary palpi terminated by an acicular obscure joint.

Sp. 1. Hellwigii. Last joint of the maxillary palpi obsolete; three last joints of the antennæ forming a club. Thorax ovate. Body fuscous-red brown, pubescent. Head, thorax, and abdomen, darker. Elytra smooth.

Pselaphus hellwigii. Herbst, Paykull, Illiger.

Anthicus hellwigii. Fabr.

Scydmanus hellwigii. Latr.

Inhabits the roots of trees, and under moss.

Sp. 2. Godarti. Last joint of the maxillary palpi conspicuous, dentiform, the joints at the apex of the antennæ not abruptly larger than the preceding ones. Thorax somewhat elongate-quadrate, a little narrower behind. Body deep castaneous, pubescent.

Scydmanus Godarti. Latr. *Gen. Crust. et Ins.* 1. 282. tab. 8. fig. 6.

Inhabits France.

TRIBE XIII. PTINIDES.

Antennæ much longer than the head, filiform, or terminated by three large joints, not united into a mass.

DIVISION I.

Antennæ uniform, not terminated, with three joints larger than the rest.

GENUS CXVII. PTINUS. Linn. Fabr. Latr. Lam. Oliv. Bruchus. Geoffroy.

Antennæ approximate, inserted between the eyes. Eyes projecting. Thorax hood-like. Abdomen nearly oval. Elytra united in the male.

Sp. 1. Fur. Red-fuscous. Thorax with four tubercles transversely striated, the two middle ones highest, with tufts of hair, contracted and margined behind. Abdomen ovate, rounded at the base. Elytra villose, with two yellow-grey bands. The second joint of the antennæ shorter than the third. Under part of the body with short grey-yellow hairs.

Ptinus Fur. Linn. Fabr. Latr. Oliv.

Inhabits houses, committing horrid devastations in museums.

Ptinus testaceus of Marsham, is merely the male of this species.

Sp. 2. Germanus. Fuscous. Thorax with four tubercles transversely seriated; with short, obscure-red hairs, hinder part contracted and margined. Abdomen quadrate ovate, base straight, transverse, not narrower. Elytra blackish, with two bands and a spot at the apex, whitish; the shoulders prominent. Antennæ with the second joint of the same magnitude with the third. Under part of the body with grey hairs. Thighs with a naked or brown band.

Ptinus Germanus. Fabr. Latr.

Ptinus elegans. Illig. Fabr.

Inhabits houses, with the other.

GENUS CXVIII. GIBIUM. Scopoli, Latr.

BRUCHUS. Geoff.

PTINUS. Fabr. Oliv.

SCOTIAS. Czenpinski.

Antennæ inserted before the eyes, simple, and setaceous. Eyes not projecting. Thorax not hood-like. Abdomen nearly globular. Elytra united.

Sp. 1. Scotias. Castaneous, shining, smooth, antennæ and feet pubescent.

Ptinus Scotias. Fabr. Oliv.

Gibbium Scotias. Latr.

Inhabits the museums of southern Europe.

GENUS CXIX. PTILINUS. Geoff. Oliv. Lam. Fabr. Latr.

ANOBIUM. Illiger.

SERROCERUS. Kugellan.

PTINUS. Linn. Marsh.

Antennæ inserted before the eyes, very much pectinated in the males, serrated in the females.

Body long ovoid, nearly cylindric. Thorax somewhat globose.

Sp. 1. Pectinicornis. Body blackish. Elytra obscure brown. Antennæ and feet reddish. Thorax rough. Elytra punctate.

Ptilinus pectinicornis. Fabr. Oliv. Latr.

Ptinus pectinicornis. Linn. Marsh.

Dermestes pectinicornis. Linn.?

Inhabits old trees and houses, perforating them to destruction. *Ptinus serraticornis*, Marsham, is the female of this insect.

GENUS CXX. XYLETINUS. Latr.

PTILINUS. Illiger.

Antennæ inserted before the eyes, serrated in both sexes. Body short ovoid.

Sp. 1. Lavis.

Ptilinus lavis. Illiger.

Xyletinus lavis. Latr.

Inhabits Europe.

DIVISION II.

Antennæ terminated by three joints, different from the rest in size.

GENUS CXXI. ANOBIUM. Fabr. Oliv. Delamark, Latr.

PTINUS. Linn. De Geer, Marsham.

BRUCHUS. Geoff.

Antennæ eleven-jointed, with the three last joints abruptly thicker than the others; the ninth and tenth joints obconic; the tenth oval.

* Thorax short transverse.

Sp. 1. Tessalatum. Thorax bilobate behind the lateral margins reflexed. Body fuscous, sprinkled with villose, obscure luteous spots. Elytra not striated.

Anobium tessalatum. Fabr. Latr.

Ptinus tessalatus. Marsham.

Inhabits Europe.

Sp. 2. Molle. Thorax with the lateral margins not margined, acute. Body rufous-fuscous, smooth. Eyes black.

Anobium molle. Fabr. Oliv. Latr.

Ptinus mollis. Linn.

Inhabits Europe.

** Thorax not much broader than long.

Sp. 3. Striatum. Fuscous, with greyish down. Thorax with a gibbous protuberance, unisulcate above, with the angles compressed. Hinder margins somewhat margined. Elytra longitudinally punctate.

Anobium striatum. Latr. Oliv. Illig.

Anobium fectinax. Fabr. Paykull.

Inhabits Europe.

GENUS CXXII. DORCATOMA. Payk. Latr. Fabr.

Antennæ nine-jointed; the three last joints very large, the seventh and eighth triangular, and much dilated on their internal side.

Sp. 1. Dredense.

Dorcatoma Dredense. Fabr. Latr.

Inhabits Europe.

TRIBE XIV. DERMESTIDES.

Antennæ slender, longer than the head, and terminated by a large ovoid mass.

FAMILY I. *Dermistida*.

Sternum not produced to the mouth, or over it like a neckcloth. Tibiæ spinose.

GENUS CXXIII. DERMESTES. Linn. Fabr. Latr. Marsh. Herbst, Oliv.

Antennæ with an ovate club, the last joint short, not (or but little) longer than the preceding joint. Body narrow oval. Thorax with the hinder margin straight, or obtusely lobed. Palpi very short; maxillary palpi shorter than the maxillæ, or scarcely as long.

Sp. 1. *Lardarius*. Black; base of the elytra with a cinereous-band, with black points.

Dermestes lardarius. Linn. Fabr. Latr. Marsh.

Inhabits Europe.

Dermestes, 2. *Vulpinus*, 3. *Murinus*, 4. *Tessellatus* are the other indigenous species of this genus.

GENUS CXXIV. ATTAGENUS. Latr.* Leach.

MEGATOMA. Herbst.

DERMESTES. Fabr. Linn. Latr. Marsh.

Antennæ with an elongate-ovate club, the last joint longer than the preceding, (especially in the male) triangular or conic. Body broad-oval. Thorax with the posterior margin narrowly and acutely lobed. Maxillary palpi exerted, longer than the maxillæ; the last joint elongate-cylindric, very long in some.

Sp. 1. *Pellio*. Black; middle of the antennæ and of the tarsi obscure red; hinder margin of the thorax with three spots, and the elytra with a spot on each side of the suture, villose-white; antennæ of the male with the last joint ensiform, very long.

Dermestes pellio. Linn. Fabr. Marsh. Latr.

Megatoma nigra. Herbst. (Variety of the male.)

Inhabits skins in houses, and is found sometimes on flowers.

Sp. 2. *Trifasciatus*. Black; hinder margin of the thorax, three bands on the elytra, and the breast grey-villose.

Dermestes trifasciatus. Fabr. Latr.

Inhabits Europe; is found in the south of France, in Sweden, and in Scotland.

FAMILY II. *Megatomida*.

Sternum produced over the mouth, like a neckcloth. Tibiæ not or but slightly spined.

GENUS CXXV. MEGATOMA.† Herbst. Latr.

DERMESTES. Linn. De Geer, Fabr.

Body narrow-oval. Antennæ with an oval or oblong club, with the internal edge simple.

Sp. 1. *Undatum*. Black; sides of the thorax, and two undulated bands on the elytra, white-villose. Tarsi obscure red.

Megatoma undulata. Herbst.

Megatoma undatum. Latr.

Dermestes undatus. Linn. Fabr. Oliv. Panz.

TRIBE XV. BYRRHIDES.‡

Body ovoid. Feet entirely or semicontractile. Sternum anteriorly produced to the mouth in the form of a

neckcloth. Antennæ thicker towards their extremities.

DIVISION I.

Tarsi with five very distinct articulations.

Subdivision 1.

Antennæ straight, not inserted in the cavity of the eyes. Feet perfectly contractile. Mandibles but little, or not at all, prominent.

GENUS CXXVI. ANTHRENUS. Geoff. Fabr. Oliv. Lam. Latr.

BYRRHUS. Linn. Marsham.

DERMESTES. De Geer.

Antennæ shorter than the thorax, with the club solid. Palpi filiform, short. Body orbiculate ovate. Scutellum very minute.

Sp. 1. *Scrophulariæ*. Black; sides of the thorax, and three transverse bands on the elytra, grey; suture and external margin of the elytra, and hinder margin of the thorax, red-lutescent.

Anthrenus Scrophulariæ. Fabr. Latr.

Byrrhus Scrophulariæ. Linn. Marsh.

Inhabits plants in Europe.

GENUS CXXVII. TITROSCUS. Latr.

ELATER. Linn. Olivier, Geoffroy.

DERMESTES. Fabr. Paykull, Illiger.

Antennæ as long as the thorax, with the three last joints large, forming an oval club. Palpi short, with the last joint securiform. Body elliptic, narrow, depressed.

Obs. This genus probably belongs to the tribe ELATERIDES, from which it differs but in the structure of its antennæ.

Sp. 1. *Dermestoides*. Brown, with grey-yellowish down; elytra, with punctated striæ.

Elater dermestoides. Linn. Oliv.

Dermestes adstrictor. Paykull, Illiger, Fabr.

Thosus dermestoides. Latr.

Inhabits European plants; is rare in Britain.

GENUS CXXVIII. BYRRHUS. Linn. Fabr. Oliv. Lam. Latr. Illig. Gyll.

CISTELA. Geoffroy, Marsham.

DERMESTES. De Geer.

Antennæ a little shorter than the thorax, with the four or five terminal joints gradually thicker, compressed. Palpi short, the last joint longest, thick, somewhat ovate. Body somewhat ovate, very convex above. Scutellum minute.

Sp. 1. *Psila*.

Byrrhus psila. Linn. Fabr. &c.

Cistela undulata of Marsham is merely a variety of this species.

GENUS CXXIX. CHELONARIUM. Fabr. Latr.

Antennæ seven-jointed, the two last somewhat largest. Palpi with the last joint securiform. Body ovate, more convex below.

Sp. 1. *Beauvoisi*.

Chelonarium beauvoisi. Latr.

Chelonarium atrum. Fabricius?

Inhabits the island of St Domingo.

Subdivision 2.

Antennæ elbowed or geniculated, not inserted in the

* DERMESTES of his last work.

† *Megatoma terra* of Latreille, probably constitutes a distinct genus.

‡ An artificial tribe, containing many divisions.

cavity of the eye. Feet perfectly contractile. Mandibles very prominent.

GENUS CXXX. *HISTER*.^{*} Linn. Fabr. &c.

ATTELABUS Geoffroy.

Body somewhat quadrate. Thorax transverse. Scutellum small. Elytra shorter than the abdomen. Breast very large. Head intruded into a concavity in the anterior part of the thorax. Palpi filiform, short, unequal, the last joint somewhat cylindrical, obtuse.

* Body depressed, the breadth exceeding the height.

Tibiae broad, somewhat triangular. Tarsi short.

a. Body not very much depressed.

Sp. 1. Unicolor.

Hister unicolor. Linn. Fabr. &c.

Inhabits dung.

b. Body very much depressed.

Sp. 2. Planus.

Hister planus. Fabr.

Inhabits beneath the bark of trees.

** Body very thick and high. Tibiae narrow, elongate. Tarsi slender.

Sp. 3. Sulcatus.

Hister sulcatus. Rossi, Latr.

Hister striatus. Fabr. Herbst.

Inhabits the dung of oxen and horses.

Subdivision 3.

Antennae strait, not inserted in the cavity of the eyes. Feet semicontractile.

GENUS CXXXI. *NOBODENDRON*. Latreille.

BYRRHUS. Olivier.

SPHERIDIUM. Fabr. Panzer.

Antennae terminated abruptly by a three-jointed perfoliated club, composed of three joints.

Sp. 1. Fasciulare. Black, shining, distantly punctured; thorax linear, transverse; elytra with elevated, hairy, brownish smoke-coloured dots.

Sphæridium fasciulare. Fabr.

Byrrhus fascicularis. Olivier.

Nobodendron fasciulare. Latr.

Inhabits France and Germany, under the bark of elms.

GENUS CXXXII. *LIMNIUS*. Müller, Gyllenhal, Megerlei.

DYTISCUS. Panzer.

CHRYSOMELA. Marsham.

ELMIS. Latr.

Antennae nearly filiform, the last joint largest, somewhat oval.

Sp. 1. Volckmari.

Dytiscus Volckmari. Panzer, *Faun. Ins. Germ. fasc. 7.* fig. 4.

Limnius Volckmari. Müller.

Elmis Volckmari. Latr.

Chrysomela bufrestandes. Marsh.

Subdivision 4.

Antennae inserted in the anterior canthus of the eye.

GENUS CXXXIII. *PARNUS*. Fabr. Illiger, Marsh.

DERNESTES. Geoffroy.

ELATER. Rossi.

DAYOPS. Olivier, Lamarck, Latr.

Sp. 1. Auriculatus.

Dryops Auriculatus. Latr. Olivier.

DIVISION II.

Tarsi with four distinct joints.

GENUS CXXXIV. *HETEROCERUS*. Bosc, Fabr. Illiger, Latr. Marsham.

Antennae composed of eleven joints, the seven last forming a dentate or serrated mass.

Sp. 1. Marginatus. Blackish, villose; sides of the thorax and abdomen, with spots on the elytra, margins of the abdomen, and feet, pale luteous.

Heterocerus marginatus. Fabr. Bosc, Illiger, Panzer, Marsham.

Inhabits marshy places, burrowing in the muddy banks of ponds.

GENUS CXXXV. *GEORISSUS*.† Latr.

PINELIA. Paykull, Fabr.

Antennae nine-jointed, the three last joints forming a rounded nearly solid mass.

Sp. 1. Pygmaea.

Pinelia pygmaea. Paykull, Fabr.

Georissus pygmaeus. Latr.

TRIBE XVI. HYDROPHILIDES.

Antennae terminated by a club. Maxillary palpi very long. Chin or mentum large, clypeiform. Head with the front rounded, cowl-shaped. Feet formed for swimming. Tarsi with the first joint shorter than the second.

FAMILY I. *Helophoridae*.

Mandibles without teeth at their extremities. Maxillary palpi generally much shorter than the antennae. Body oblong. Thorax somewhat quadrate, or nearly semiorbicular, or somewhat cordate-truncate. Tibiae slightly shines. Tarsi filiform, not ciliated, with two strong, acute, entire nails.

GENUS CXXXVI. *HELOPHORUS*. Leach.

ELOPHORUS. Illiger, Fabr. Latr. Olivier.

HYDROPHILUS. De Geer, Marsham.

Clypeus entire. Palpi with the last joint oval, thick; maxillary palpi much shorter than the antennae.

* Body elliptic, as somewhat ovate. Thorax broader than long.

Sp. 1. Aquaticus.

Elophorus grandis. Illiger.

Elophorus aquaticus. Fabr. Olivier, Latr.

Inhabits ditches and stagnant pools of water.

** Body nearly linear; thorax elongate-quadrate.

Sp. 2. Elongatus.

Elophorus elongatus. Fabr. Latr.

Inhabits stagnant waters in England, France and Germany.

GENUS CXXXVII. *OCHTHEBIUS*. Leach.

HYDRÆNA. Latr. Illiger.

HYDROPHILUS. Marsham.

ELOPHORUS. Paykull.

Clypeus entire. Palpi with the last joint slender, acuminate; maxillary ones shorter than the antennae.

Sp. 1. Riparia.

Hydræna riparia. Illiger, Latr.

Elophorus pygmaeus. Paykull.

Elophorus minimus. Fabr.

Hydrophilus impressus. Marsham.

Inhabits the waters of Europe.

Sp. 2. Marinus.

* This genus seems to constitute a peculiar family, and might be divided into some very natural genera.

† This singular genus has the lip and maxillæ of *Helophorus*; the general habit of *Byrrhus*; and the tarsi of *Heterocerus*.

Hydrena Margiphalleus. Latr.
Hydrophilus margiphalleus. Marsh.
Elophorus marinus. Paykull.

Inhabits Europe.

GENUS CXXXVIII. *HYDRENA*. Kugellan, Leach.

Elophorus. Gyllenhal.

Hydrophilus. Marsh.

Palpi with the last joint acuminate at each extremity; maxillary palpi longer than the antennæ. Clypeus emarginate.

Sp. 1. Longipalpis.

Hydrophilus longipalpis. Marsh.

Inhabits running water.

FAMILY II. *Hydrophilida*.

Mandibles with their points bidentate; Thorax transverse, short. Body hæmspheric-oval. Tibiæ simple or spined. Tarsi ciliated or simple. Maxillary palpi very long.

GENUS CXXXIX. *SPERCHEUS*. Fabr. Latr. Schön.

Hydrophilus. Illiger, Marsh.

Sternum simple. Clypeus emarginate. Antennæ six-jointed. Tibiæ simple, or scarcely spined.

GENUS CXL. *HYDROBIUS*. Leach.

Hydrophilus. Latr. Fabr. Marsh. De Geer.

Dytiscus. Linn.

Sternum simple. Clypeus entire. Antennæ nine-jointed. Tibiæ terminated by strong spines. Elytra entire.

Sp. 1. Luridus.

Hydrophilus luridus. Latr. Fabr.

Dytiscus luridus. Linn.

Inhabits stagnant waters.

GENUS CXLI. *LIMBEBIUS*. Leach.

Hydrophilus. Marsh. Gyllen.

Sternum simple. Clypeus entire. Antennæ nine-jointed. Elytra truncate at their extremities.

Sp. 1. Piscinus.

Hydrophilus piscinus. Marsh.

Inhabits drains and springs.

GENUS CXLII. *HYDROPHILUS*. De Geer, Latr. Fabr. Marsh.

Dytiscus. Linn.

Sternum produced into a spine. Clypeus entire. Antennæ nine-jointed. Anterior tarsi of the male simple, filiform.

Sp. 1. Caraboides.

Hydrophilus caraboides. Fabr. Latr. Marsh.

Inhabits stagnant waters.

GENUS CXLIIL. *HYDRUS*. Leach, from the Linnean MSS.

Hydrophilus. Marsh. Latr. Fabr.

Sternum produced into a spine. Clypeus entire. Anterior tarsi of the male patelliform. Antennæ nine-jointed.

Sp. 1. Piceus.

Hydrophilus piceus. Fabricius, Marsham.

Inhabits Europe in ditches.

TRIBE XVII. *SPHERIDIDES*.

Antennæ terminated by a club. Maxillary palpi very long. Mentum large, clypeiform. Head with the front rounded, cowl-shaped. Feet formed for walking. Tarsi with the basal joint as long or longer than the second joint.

GENUS CXLIV. *SPHERIDIUM*. Fabricius, Olivier, Lamarck.

DERMESTES. Linn. De Geer, Marsham.

Body somewhat hemispheric. Eyes immersed. Thorax transverse. Tibiæ spinose, armed with heels. Sternum behind produced into a conic spine.

Sp. 1. Scarabæoides. Black, shining, smooth; scutellum long-triangle; feet very spiny; each elytron at the base with a blood-red spot, and a livid reddish spot at the apex.

Sphæridium scarabæoides. Fabricius.

Sphæridium scarabæoides. var. A. Latreille.

Dermestes scarabæoides. Marsham, Linn.

Inhabits dung.

TRIBE XVIII. *COPRIDES*.

Antennæ eight or nine jointed, terminated by an abrupt lamellated mass. Anterior tibiæ large and dentated. Mentum not very large. Mandibles membranaceous. Maxillæ membranaceous, Clypeus semicircular.

FAMILY I. *Coprida*.

Labial palpi very hairy, the last joint smaller than the preceding. Scutellum none, or very obscure. Wing-cases taken together, not longer than broad. Posterior feet situated near the anus.

DIVISION I.

The posterior, and sometimes the intermediate, tibiæ elongate, slender, little or not at all dilated at their extremities, nearly cylindrical.

GENUS CXLV. *ATEUCHUS*.* Web. Fabr. Illiger. Latr.

COPRIS. Geoffroy.

ACTINOPHORUS. Sturm.

SCARABÆUS. Linn. De Geer.

Antennæ nine-jointed. Body depressed. Elytra taken together square, not abruptly or deeply sinuated behind the shoulder. Hinder feet not much longer than the body. Labial palpi, with the basal joint quadrate oval. Anterior tibiæ with four strong teeth externally.

Sp. 1. Sacer.

Ateuchus sacer. Fabricius.

Scarabæus sacer. Linn. Oliv.

Inhabits the southern parts of Europe and Africa.

GENUS CXLVI. *GYMNOLEURUS*. Illiger.

ATEUCHUS. Latreille, Fabricius.

Antennæ nine-jointed. Body depressed. Coleoptera quadrate; their external margin behind the shoulders abruptly and deeply sinuated. Hinder feet not much longer than the body. Labial palpi with their basal joint somewhat quadrate. Anterior tibiæ with three strong teeth externally.

Sp. 1. Flagellatus.

Ateuchus flagellatus. Fabricius, Latreille.

Gymnoleurus flagellatus. Illiger.

Inhabits southern Europe and Africa.

GENUS CXLVII. *SISYPHUS*. Latreille.

ATEUCHUS. Illiger, Fabricius.

COPRIS. Geoffroy.

SCARABÆUS. Linn. Olivier.

Antennæ eight-jointed. Coleoptera forming a triangle. Feet elongate; hinder ones much longer than the body,

* Insects of this genus are sculptured on the Egyptian monuments of antiquity, several specimens of which may be seen in the gallery of the British Museum.

with clavate thighs. Body with the transverse and perpendicular diameters nearly equal.

Sp. 1. Schaefferi.

Sisyphus schaefferi. Latreille.

Atuchus schaefferi. Fabricius.

Scarabæus schaefferi. Linn. Olivier.

Inhabits southern Europe, being extremely fond of human excrement.

DIVISION II.

The four hinder tibiae short, or but little lengthened; much dilated at their extremities.

Subdivision 1.

Labial palpi, with the last joint, very distinct. Thorax much shorter than the elytra; much broader than long. Anterior tibiae long, arcuate.

GENUS CXLVIII. COPRIS. Geoffroy, Illiger, Fabricius, Lamarck, Latreille.

SCARABÆUS. Linn. De Geer, Olivier.

Scutellum none. Abdomen elevated, convex. Anterior tibiae longer than the others; externally with three strong teeth, terminated by a tarsus. Antennæ nine-jointed.

Sp. 1. Lunaris.

Copris lunaris. Fabricius, Latreille.

Scarabæus lunaris. Linn. Marsham.

Inhabits Europe. *Scarabæus emarginatus* of Marsham is merely the female of this species.

GENUS CXLIX. ONITIS.* Fabricius, Illiger, Latreille.

SCARABÆUS. Linn. Olivier.

Abdomen depressed. Anterior tibiae very long. Scutellum none.

Sp. 1. Sphinx.

Scarabæus sphinx. Olivier.

Onitis sphinx. Latreille, Fabricius.

Inhabits Africa and the southern parts of Europe.

Subdivision 2.

Labial palpi with the last joint not distinct. Thorax longer than the elytra. Tibiæ all terminated by a tarsus.

GENUS CL. ONTHOPHAGUS. Latreille.

COPRIS. Geoffroy, Illiger, Fabricius.

Sp. 1. Vacca.

Scarabæus vacca. Herbst, Linn. Olivier, Marsham.

Copris vacca. Fabricius, Illiger.

Onthophagus vacca. Latreille.

Inhabits dung; is very common near London.

FAMILY II. Aphodidae.

Labial palpi nearly smooth, filiform, the joints nearly equal, cylindric. Feet all separated by equal distances; hinder ones distant from the anus. Scutellum distinct.

GENUS CLI. APHODIUS.† Illiger, Fabricius, Latreille.

SCARABÆUS. Olivier, Marsham. Linn.

Sp. 1. Rufipes.

Aphodius rufipes. Fabricius.

Scarabæus rufipes. Linn. Marsham.

Inhabits dung.

* *Onitis meris*, Latreille; and *Onitis clinias*, Fabricius; have a scutellum, and should constitute a peculiar genus.
† *Aphodius* may be divided, for the sake of convenience, from the clypeus; 1. Clypeus smooth, emarginate; 2. Clypeus smooth, entire; 3. Clypeus tuberculate.

TRIBE XIX. SCARABÆIDES.

Antennæ eleven-jointed, terminated by a lamellated club. Anterior tibiae large, dentate. Mentum not large. Mandibles corneous, porrect. Labrum prominent. Clypeus rhomboidal.

GENUS CLII. LETHRUS. Fabricius, Scopoli, Olivier, Illiger, Lamarck, Latreille.

LUCANUS. Pallas.

Antennæ terminated by a conic club, obliquely truncate, the ninth joint infundibuliform, including the tenth and eleventh joints. Head produced behind the eyes. Abdomen very short. Hinder feet inserted at the anus. Scutellum very small. Coleoptera united, forming a triangle with the apex rounded; their sides involute inflected.

Sp. 1. Cephalotes. Black, elytra smooth.

Lethrus Cephalotes. Fabricius, Olivier, Latreille.

Lucanus apterus. Pallas.

Clunipes scarabæoides. Act. Soc. Berol. vi. 347, tab. 8, fig. 7, 8.

Bulbocerus cephalotes. Archav. Act. Suec. 1781, p. 246, tab. 5, fig. 3—12.

Inhabits eastern and southern Europe.

GENUS CLIII. SCARABÆUS. Linn. Geoffroy, Fabricius, Olivier, De Geer.

GEOTRUPES. Latreille, Dumeril, Lamarck.

Antennæ terminated by an oval lamellated club. Thorax shorter than the abdomen, not horned. Hinder feet distant from the anus. Head not produced behind the eyes. Scutellum obvious.

Sp. 1. Stercorarius.

Scarabæus stercorarius. Linn. Fabricius, Olivier.

Geotrufes stercorarius. Latreille.

Inhabits Europe, boring cylindric holes beneath dung, and flying about in the evening after dusk.

GENUS CLIV. TYPILÆUS. Leach's MSS.

Scarabæus. Fabricius, Gyllenhal, Marsham.

Antennæ terminated by an oval lamellated club. Thorax shorter than the abdomen; one each side in front with a long process, which extends along the sides of the head. Hinder feet distant from the anus. Head not produced behind the eyes. Scutellum obvious.

Sp. 1. Vagialis.

Scarabæus typhæus. Fabricius, Gyllenhal, Marsham.

Inhabits dung of horses on heaths; is found in spring and autumn in great plenty in many parts of Britain.

Scarabæus fumilis of Marsham is merely a stunted or accidental variety of this species.

TRIBE XX. GEOTRUPIDES.

SCARABÆIDES. Latreille.

Antennæ ten-jointed, (in some nine,) terminated by a lamellated club. Mandibles corneous in part. Clypeus triangular or quadrate. Anterior tibiae large and dentate. Mentum not large.

FAMILY I. Geotrufidae.

No scale between the posterior angles of the thorax and the exterior base of the elytra.

DIVISION I.

Thorax almost quadrate, more or less transverse. Mandibles entirely corneous.

Subdivision 1.

Labrum prominent even beyond the clypeus. Maxillæ interiorly armed with a horny hook, simple or bifid. Body nearly globular or ovoid. Elytra tumid, embracing the sides of the abdomen.

GENUS CLV. *ÆGIALIA*. Latreille.

Aphodius. Panzer, Illiger.

Psammodius. Gyllenhal.

Antennæ distinctly longer than the head; composed of nine joints, the first of which is cylindric and a little hairy. Body nearly globular. Maxillæ with a bifid hook.

Sp. 1. *Globosa*. Black, shining; head granulated; elytra striated, impunctate.

Aphodius globosus. Illiger.

Psammodius globosus. Gyllenhal.

Ægialia globosa. Latreille.

Inhabits the sandy shores of the sea.

GENUS CLVI. *Trox*. Fabricius, Olivier, Lamarck, Latreille.

Scarabæus. Linn. Marsham, Geoffroy, De Geer.

Antennæ scarcely longer than the head; composed of ten joints, the first obconic and very hairy. Body ovoid. Maxillæ with a simple hook.

Sp. 1. *Sabulosus*.

Trox sabulosus. Fabricius, Latreille.

Scarabæus sabulosus. Linn.

Inhabits sandy places.

Subdivision 2.

Labrum not projecting beyond the clypeus. Body not globose. Elytra not embracing the sides of the abdomen.

a. Labrum entirely hidden. Clypeus triangular. Maxillæ coriaceous, or horny; conic, or triangular. Mouth very hairy. Scutellum very small. (Colours dark.)

GENUS CLVII. *SINODENDRON*. Fabr. Latr. Don.

Scarabæus. Linn. De Geer, Olivier.

Lucanus. Marsham.

Antennæ with the laminated club not capable of being folded; the lamellæ very short, resembling the teeth of a saw. Body cylindric. Maxillæ coriaceous, bilobate.

Sp. 1. *Cylindricum*. Black, shining, impressed-punctate, cicatriculose; the punctures umbilicated, the umbilici perforate. (Male with a conic-compressed horn; the female with a short horn on the head.)

Sinodendron cylindricum. Fabr. Latr. Donovan.

Scarabæus cylindricus. Linn. De Geer, Olivier.

Lucanus cylindricus. Marsham.

Inhabits old trees, especially the ash. Is very abundant near Cheltenham, and near Plymouth, in decaying ash trees.

GENUS CLVIII. *ORYCTES*. Illiger, Latreille.

Scarabæus. Linn. Geoffroy, De Geer, Olivier.

Geotrufes. Fabricius.

Antennæ with the lamellæ of the club long and platate. Body ovoid, convex. Mandibles with their external edge without teeth or folds. Maxillæ coriaceous, one-lobed. Thorax with the sides dilated, and a little rounded.

Sp. 1. *Nasicornis*. Fuscous-castaneous, shining; head with one horn; elytra polished finely, and distantly punctured.

Oryctes nasicornis. Illiger, Latreille.

Scarabæus nasicornis. Linn.

Geotrufes nasicornis. Fabr.

Inhabits Europe, in old wood.

GENUS CLIX. *PHILEURUS*. Latr.

Scarabæus. Linn. Olivier.

Geotrufes. Fabr.

Antennæ with the lamellæ of the club long and plicatite. Body ovoid, depressed. Mandibles with their external edge without teeth or folds. Maxillæ corneous, dentated. Thorax with its sides dilated and rounded.

Sp. 1. *Dydimus*.

Geotrufes dydimus. Fabr.

Phileurus dydimus. Latr.

GENUS CLX. *GEOTRUFES*. Fabr.

Scarabæus. Linn. Oliv. Latr. Lam.

Antennæ with the club composed of long, plicatite lamellæ. Body ovoid, convex. Mandibles with their external edge crenulated or toothed. Maxillæ corneous, dentated.

Sp. 1. *Punctatus*.

Geotrufes punctatus. Fabr.

Scarabæus punctatus. Latr.

Inhabits southern Europe.

b. Labrum with the anterior edge apparent. Clypeus quadrate. Scutellum large. (Colours various and gay.)

* External edge of the mandibles prominent, depressed, with the sides cutting, crenulated, or sinuated. (Body short, ovoid, or somewhat orbicular: Scutellum generally large: Thorax short, broad: Sternum produced into a point anteriorly.)

GENUS CLIX. *HEXODON*. Oliv. Fabr. Lam. Lat.

Mandibles with their points strongly three-toothed. Body nearly orbicular. Elytra with their exterior side dilated and channelled. Antennæ ten-jointed, with a small oval club composed of three lamellæ. Feet slender. Tarsi with very small nails.

Sp. 1. *Reticulatum*.

Hexodon reticulatum. Latr.

Inhabits Madagascar.

GENUS CLXII. *RUTELA*. Latr.

Scarabæus. Linn. De Geer.

Cetonia. Fabr.

Melolontha. Fabr.

Body more or less ovoid. Elytra with their exterior side not dilated or channelled. Antennæ with their club large and oblong, composed of three lamellæ. Mandibles with their points having three little teeth. Feet strong. Tarsi with strong nails.

* Tarsi with undivided nails; the nails of unequal size.

Sp. 1. *Punctata*.

Melolontha punctata. Fabr.

Rutela punctata. Latr.

Inhabits America.

** Tarsi with undivided equal-sized nails.

Sp. 2. *Lineola*.

Cetonia lineola. Fabr.

Rutela lineola. Latr.

Inhabits America.

*** Tarsi with one nail divided, and another bifid. (Scutellum very large.)

Sp. 3. *Chrysis*.

Cetonia chrysis. Fabr.

Rutela chrysis. Latr.

Inhabits America.

** Mandibles not, or but little, prominent, without any crenatures or sinuosities remarkable in their outer edge. (Body ovoid-oblong: Scutellum small, or moderately sized.)

GENUS CLXIII. MELOLONTHA. Fabricius, Olivier, Lamarck, Latreille.

SCARABÆUS. De Geer, Linn. Marsham.

Elytra with their external edge not sinuated, very slightly narrower at their base than at their points. Tibiæ armed with very distinct heels.

Sp. 1. *Vulgaris*. (Common cockchaffer.)

Melolontha vulgaris. Latreille, Fabricius.

Scarabæus melolontha. Linn.

Sp. 2. *Solstitialis*. (Summer cockchaffer.)

Melolontha solstitialis. Fabricius, Latreille.

Scarabæus solstitialis. Linn.

Sp. 3. *Vitis*.

Melolontha vitis. Fabricius, Latreille.

Sp. 4. *Horticola*. (Fernweb.)

Melolontha horticola. Fabricius.

Scarabæus horticola. Linn. Marsham.

Sp. 5. *Agricola*.

Melolontha agricola. Fabricius.

Obs. The genus *Melolontha* should be divided into a vast number of genera, of which the species are the types of those inhabiting Great Britain.

GENUS CLXIV. HOPLIA. Illiger, Latreille.

SCARABÆUS. Linn. Geoff. De Geer.

MELOLONTHA. Fabricius, Olivier.

Elytra with their external edge sinuated. Tibiæ with very obscure spurs or heels.

Sp. 1. *Pulverulenta*.

Melolontha pulverulenta. Fabricius.

Inhabits France, England, and Germany.

DIVISION II.

Thorax as long as broad, nearly orbicular, or almost ovoid and truncate at the two extremities. Mandibles partly membranaceous, sometimes entirely corneous. Maxillæ terminated by a membranaceous, or coriaceous lobe.

Subdivision 1.

Labrum prominent. Mandibles entirely corneous. Elytra dehiscent at the extremity of the suture. Abdomen elongate-quadrate.

GENUS CLXV. GLAPHYRUS. Latreille.

SCARABÆUS. Linn.

MELOLONTHA. Fabr. Oliv.

Antennæ terminated by a rounded knob, the two last joints received by the ninth joint.

Sp. 1. *Maurus*.

Scarabæus maurus. Linn.

Melolontha cardui. Fabr.

Melolontha maurus. Oliv.

Glaphyrus maurus. Latr.

Inhabits Barbary.

GENUS CLXVI. AMPHIOMA. Latr.

SCARABÆUS. De Geer, Pallas.

MELOLONTHA. Fabr. Oliv.

Antennæ with an ovoid club, having all the lamellæ disengaged.

Sp. 1. *Melis*.

Melolontha melis. Fabr.

Amphioma melis. Latr.

Inhabits Barbary.

Subdivision 2.

Labrum not prominent. Mandibles entirely or partly membranaceous.

GENUS CLXVII. ANISONYX. Latr.

SCARABÆUS. Linn.

MELOLONTHA. Fabr. Oliv.

Antennæ with the first joint not very large. Clypeus

porrect, a little narrower in front. Palpi very slender, long, terminated by a cylindric joint. Tarsi with unequal nails. Hinder feet large.

Sp. 1. *Criminum*.

Scarabæus longipes. Linn.

Melolontha crinita. Fabr.

Anisonyx crinitum. Latr.

Inhabits the Cape of Good Hope.

GENUS CLXVIII. TRICHIVS. Fabr. Latr.

SCARABÆUS. Linn. Geoff. De Geer, Marsham.

CETONIA. Olivier.

Antennæ with the first joint very large. Clypeus quadrate. Palpi short, with their last joints oval. Tarsi with equal nails.

* Body almost entirely (above at least) smooth. Hinder feet, with the tibiæ and tarsi, of almost equal lengths.

Sp. 1. *Nobilis*.

Trichius nobilis. Fabr. Latr.

Cetonia nobilis. Oliv.

Scarabæus nobilis. Linnæus, Marsham.

** Body tomentose. Hinder feet, with the tarsi most distinctly longer than the tibiæ.

Sp. 2. *Fasciatus*.

Trichius fasciatus. Latreille, Fabr.

Cetonia fasciata. Olivier.

Scarabæus fasciatus. Linnæus.

Inhabits Europe on umbelliferous flowers.

GENUS CLXIX. CREMASTOCHEILUS. Knoch, Latreille.

Antennæ with the first joint very large. Clypeus transverse, the anterior margin replected, arcuate, entire. Palpi short, with the last joint very long, cylindric, the apex obtuse. Thorax with the anterior angles dilated, tuberculiform. Tarsi with equal nails.

Sp. 1. *Castaneus*.

Cremastocheilus castaneus. Latreille, Knoch.

Inhabits America.

FAMILY II. Cetoniæ.

A triangular scale interposed between the posterior angles of the thorax, and the exterior of the base of the elytra.

GENUS CLXX. GOLIATHUS.

GOLIATH. Latreille.

CETONIA. Fabr. Oliv.

Maxillæ corneous, or very hard. Mentum very large. Thorax orbicular. Elytra slightly or not at all situated at their external edge. Clypeus with two diverging lobes.

Sp. 1. *Polyphemus*.

Cetonia polyphemus. Fabr.

Goliath polyphemus. Latr.

GENUS CLXXI. CETONIA. Fabr. Latr. Oliv. Lamarck.

SCARABÆUS. Linn. Geoff. De Geer, Marsh.

Maxillæ almost membranaceous, or coriaceous. Mentum moderately sized. Thorax triangular, with the anterior point truncate. Elytra abruptly sinuated at their external side, towards the base.

Sp. 1. *Aurata*.

Scarabæus auratus. Linn. Marsh.

Cetonia aurata. Fabr. Latr.

Inhabits the flowers of roses.

TRIBE XXI. LUCANIDES.

Antennæ with a pectinated club. Anterior tibiæ large and dentated. Palpi four. Labrum generally

wanting. Mandibles very strong, corneous, dentated, exserted. Mentum corneous.

FAMILY I. *Lucanida*.

Antennæ geniculated. Labrum not discoverable.

* Body ovoid, elevated, convex.

GENUS CLXXII. *LAMPRI*. Latreille.

Lethrus. Fabricius.

Lucanus. Schreibers, Donovan.

Thorax and elytra margined. Antennæ with the first joint straight. Mandibles very large. Sternum produced into a horn. Anterior tibiæ with but few teeth (four or five); and a scale of a triangular slope at the apex attached to the heel.

Sp. 1. Enea. Golden green, smooth.

Lethrus eneus. Fabricius.

Lucanus eneus. Schreibers.

Lamprima enea. Latreille.

GENUS CLXXXIII. *ÆSALUS*. Fabricius, Latreille.

Lucanus. Panzer.

Thorax and elytra not bordered. Antennæ with the first joint bent. Mandibles moderately sized. Sternum simple. Anterior tibiæ with many teeth.

Sp. 1. Scaraboides.

Æsalus scaraboides. Latreille, Fabricius.

Lucanus scaraboides. Panzer.

Inhabits Germany, Austria.

** Body paralleliped, depressed.

GENUS CLXXIV. *PLATYCERUS*. Geoffroy, Latreille.

Lucanus. Linn. De Geer, Fabricius, Olivier.

Palpi short. Lip smooth.

Sp. 1. Caraboides.

Lucanus caraboides. Fabricius.

Inhabits rotten trees.

GENUS CLXXV. *LUCANUS* of authors.

PLATYCERUS. Geoffroy.

Palpi long. Lip bifid, very hairy, the lacinia resemb-ling pencils.

Sp. 1. Cervus. (Common stag Beetle.)

Lucanus cervus. Linn. Fabr. Latr.

Inhabits Europe. *Lucanus inermis* of Marsham is merely the female of this species.

FAMILY II. *Passalida*.

Antennæ not geniculated, simply bent, very hairy. Labrum prominent, and very distinct.

GENUS CLXXVI. *PASSALUS*. Fabr. Lam.

Lucanus. Linn. De Geer, Olivier.

Maxillæ corneous, very much toothed. Lip crustaceous. Abdomen separated from the thorax by a wide space. Elytra embracing the sides of the abdomen. Feet short.

Sp. 1. Interruptus.

Passalus interruptus. Fabr. Latr.

Lucanus Interruptus. Linn. Oliv.

Inhabits America.

SECT. II. *HETEROMERA*.

Four anterior tarsi five-jointed, hinder pair four-jointed.

Observations. Antennæ eleven-jointed,* never lamel-lated or furnished with a pectinated head. Labrum in all distinct. Palpi four. Mandibles always horny or cor-neous, their internal edge armed with one or two teeth. Maxillæ crustaceous at the base, often with two lacinia, the external one largest, trigonate, or somewhat ovate.

Mentum crustaceous, distinct from the lip. Lip coria-ccous, hairy.

DIVISION I.

Wings generally wanting. Antennæ inserted under the prominent margin of the head, partly or entirely mo-niliform. Elytra generally united, embracing the sides of the abdomen. Maxillæ unguiculated on their inter-nal edge. Mentum large, transverse.

TRIBE I. *PIMELIADSE*.

FAMILY 1. *Pimeliada*.

Mentum large, more or less cordiform.

DIVISION I.

Antennæ abruptly terminated by a Globose head. An-terior tibiæ palmated or dentated externally.

GENUS CLXXVII. *CHIROSCELIS*. Lamarck, Latr.

Body paralleliped, depressed, margined. Scutel-lum distinct.

Sp. 1. Bifenestra.

Chiroscelis bifenestra. Latreille, Lamarck.

Inhabits New Holland.

GENUS CLXXVIII. *ERODIUS*. Fabricius, Olivier, Lamarck.

TENEBRIO. Linn.

Body nearly orbicular, gibbous. Scutellum none.

Sp. 1. Gibbus.

Erodium gibbus. Fabricius, Latreille.

Inhabits southern Europe.

DIVISION II.

Antennæ not terminated by a club. Anterior tibiæ simple.

Subdivision 1.

Body nearly orbicular.

GENUS CLXXIX. *ZOPHOSIS*. Latreille.

ERODIUS. Fabricius, Olivier.

Scutellum none.

Sp. 1. Testudinaria.

Erodium testudinarius. Fabricius.

Zophosis testudinarius. *Latreille.

Subdivision 2.

Body oblong. Thorax* convex, nearly semilunar, or almost orbicular. Elytra convex.

GENUS CLXXX. *PIMELIA*. Fabricius, Olivier, La-marck, Latreille.

TENEBRIO. Linn. Geoffroy.

Thorax much narrower than the abdomen, transverse. Abdomen nearly orbicular.

Sp. 1. Bihunctata.

Pimelia bihunctata. Fabricius.

Inhabits southern Europe.

GENUS CLXXXI. *MOLURIS*. Latreille.

TENEBRIO. De Geer.

PIMELIA. Fabricius, Olivier.

Thorax narrower than the abdomen, almost orbicular. Abdomen oval. Antennæ gradually enlarging externally, the last joint almost ovoid.

Sp. 1. Striata.

Pimelia striata. Fabricius.

Moluris striata. Latreille.

Inhabits Africa.

GENUS CLXXXII. *TENTYRIA*. Latreille.

* In one xdemora they exhibit the appearance of twelve true joints; many species have the semblance of a twelfth articulation.

AKIS. Fabricius.
 PIMELIA. Olivier.
 Thorax almost orbicular, narrower than the abdomen.
 Abdomen oval. Antennæ filiform, terminated by two or three nearly globose joints.
Sp. 1. Interrupta.
Tentyria interrupta. Latreille.
Pimelia glabra. Olivier.
 Inhabits the western parts of France.

Subdivision 3.

Body oblong. Thorax flat above, more or less truncate-cordate. Elytra plain, or but little convex. Antennæ with the third joint very long.

GENUS CLXXXIII. AKIS. Herbst, Fabricius.

TENEBRIO. Linn.

PIMELIA. Olivier.

Elytra united. Thorax with equal diameters, truncate behind. Abdomen oval, the external basal angles rounded. Scutellum very small but distinct.

Sp. 1. Reflexa.

Akis reflexa. Fabr. Herbst, Latr.

Pimelia reflexa. Olivier.

Inhabits Africa and southern Europe.

GENUS CLXXXIV. EURYCHORA. Herbst, Fabricius, Latreille.

PIMELIA. Olivier.

Thorax wider behind, transverse, emarginate before; lateral margins elevated. Abdomen triangular, the base truncated. Scutellum none. Elytra united.

Sp. 1. Ciliata.

Eurychora ciliata. Latreille, Fabricius, Herbst.

Pimelia ciliata. Herbst.

Subdivision 4.

Body oblong. Thorax flat above, more or less quadrate.

GENUS CLXXXV. ASIDA. Latreille.

MACHLA. Herbst.

TENEBRIO. Geoffroy.

OPATRUM. Fabr. Oliv.

PIMELIA. Panzer.

Thorax with the sides arched, reflexed, anterior margin concave. Antennæ thicker towards their extremities.

Sp. 1. Grisea.

Opatrum Griseum. Fabricius.

Machla rugosa. Herbst.

Pimelia variolosa. Panzer.

Asida grisea. Latreille.

Inhabits France, Germany, and Italy.

GENUS CLXXXVI. HEGETER. Latreille.

BLAPS. Olivier.

Thorax quadrate, the sides straight, not reflexed. Antennæ filiform.

Sp. 1. Striatus.

Blaps elongatus. Olivier.

Hegeter striatus. Latreille.

Inhabits Teneriffe.

FAMILY II. *Blapsida*.

Mentum small, or moderately large, quadrate or orbicular.

DIVISION I.

Palpi filiform.

GENUS CLXXXVII. TEGENIA. Latreille.

STENOSIS. Herbst.

AKIS. Fabricius.

Body elongate, depressed. Thorax nearly cylindric. Antennæ somewhat perfoliated. Scutellum very small, conspicuous.

Sp. 1. Filiformis.

Stenosis angustata. Herbst.

Rhinomacer brentoides. Rossi.

Akis filiformis. Fabricius.

Tegenia filiformis. Latreille.

Inhabits Africa and the south of France.

GENUS CLXXXVIII. SCAURUS. Fabricius, Olivier, Latreille.

Pimelia. Rossi.

Thorax almost quadrate. Abdomen oval, with the base truncate. Antennæ with the third joint slender, nearly cylindric; the eighth, ninth, and tenth, nearly globose; the eleventh conic. Anterior feet thick. Scutellum very small.

Sp. 1. Striatus.

Pimelia carinata. Rossi.

Scaurus striatus. Latreille, Fabricius, Olivier.

Inhabits the south of France.

GENUS CLXXXIX. SEPIDIUM. Fabricius, Olivier, Herbst, Latreille.

Thorax truncated before and behind, the sides prominent. Scutellum indistinct. Abdomen oval; the base and apex truncated. Antennæ with the third joint long, the tenth obconic, and the eleventh short ovoid. Body elongate ovate.

Sp. 1. Tricuspidatum.

Sepidium tricuspidatum. Olivier, Latreille, Herbst, Fabricius.

Inhabits Africa and southern Europe.

DIVISION II.

Palpi terminated by a thick joint; the last joint of the maxillary ones securiform.

GENUS CX. MISOLAMPUS. Latreille.

PIMELIA. Herbst.

Body convex. Thorax almost globose. Antennæ with the third and fourth joints of equal length. Scutellum very minute.

Sp. 1. Hoffmannseggii.

Pimelia gibbula. Herbst.

Misolampus Hoffmannseggii. Latr. Gen. Crust. et Ins. tab. 10, fig. 8.

Inhabits Portugal. Discovered by Count Hoffmannsegg.

GENUS CXI. BLAPS. Fabricius, Olivier, Lamarck, Marsham, Latreille.

TENEBRIS. Linn. Geoffroy.

Back flat. Thorax almost quadrate. Antennæ with the third joint much longer than the fourth. Elytra with their extremities pointed.

Sp. 1. Mortisaga.

Blaps Mortisaga. Fabricius, Marsham, Latreille.

Tenebrio mortisagus? Linn.

Inhabits cellars and churches.

DIVISION II.

Wings occasionally wanting. Antennæ partly or entirely moniliform; inserted under the margin of the head. Elytra sometimes united, (in all) embracing the abdomen. Mentum small, not broader than long.

Subdivision I.

Antennæ generally serrated or pectinated. Head not produced into a rostrum bearing antennæ. Maxillary palpi terminated by a large obtrigonal joint. Tarsi

with the last joint but one bilobate. Nails simple, entire, or bifid.

TRIBE II. TENEBRIONIDES.

Mandibles bifid at their extremities. Head more or less triangular, without a contraction behind, at its junction with the thorax.

FAMILY I. *Tenebrionida*.

Tarsi with entire joints. Antennæ moniliform, not perfoliated or serrated. Maxillæ unguiculated.

GENUS CXCH. *PEDINUS*. Latr.

TENEBRIO. Linn. Geof. Marsh.

BLAPS. Fabr. Herbst.

HELOPS. Olivier.

OPATRUM. Illiger.

Body oval. Maxillary palpi terminated by a thick joint. Antennæ filiform; the last joints globose or turbinate.

Sp. 1. *Femoralis*.

Pedinus femoralis. Latr.

Male.—*Blaps femoralis*. Fabr. Herbst.

Opatrum femoratum. Illig. *Coleoph. Bor.* i. 109.

Female.—*Tenebrio femoralis*. Linn.

Opatrum femorale. Illig. *Coleoph. Bor.* i. 110.

Blaps laticollis. Herbst.

Inhabits Europe in sandy places.

GENUS CXCH. *OPATRUM*. Fabr. Oliv. Lam.

SILPHA. Linn.

TENEBRIO. Geoff.

Body oval; Maxillary palpi, with their last joint obtrigonal; antennæ gradually thicker towards their extremities; the last joints transverse, compressed.

Sp. 1. *Sabulosum*.

Opatrum sabulosum. Fabr. Latr.

Silpha sabulosa. Linn.

Inhabits Europe in sandy places.

GENUS CXCV. TENEBRIO.* Linn. Geoff. De Geer, Fabr. Latr.

Thorax behind as broad as the elytra, or scarcely narrower. Body elongate. Antennæ scarcely gradually thicker towards their extremities, the eighth, ninth, and tenth joints transverse; the last subglobose. Mentum somewhat quadrate. Maxillary palpi with their last joint thick.

Sp. 1. *Obscurus*.

Tenebrio obscurus. Fabr. Latr. Panzer.

Inhabits Europe.

Sp. 2. *Molitor*. (Meal beetle.)

Tenebrio molitor. Linn. Fabr. Latr.

Inhabits houses; the larvæ in meal and flour; it is called *meal worm*.

GENUS CXCV. *UPIS*. Fabr. Paykull.

TENEBRIO. Latr.

ATELABUS. Linn.

Thorax behind narrower than the elytra. Body elongate. Antennæ thicker towards their extremities. Mentum ovate-quadrate; the upper margin rounded. Maxillary palpi with their last joint thick.

Sp. 1. *Ceramoides*.

Atelabus ceramoides. Linn.

Upis ceramoides. Fabr. Payk.

Tenebrio ceramoides. Latr.

Inhabits Sweden, in the *Boletus fomentarius*.

FAMILY 2. *Diaperida*†

Tarsi with entire joints. Antennæ not moniliform, their extremities perfoliated or serrated.

DIVISION I.

Body linear, or nearly so. Thorax almost quadrate. Antennæ terminated by a club. Maxillæ unguiculated.

GENUS CXCVI. *TOXICUM*. Latr.

Antennæ terminated by an oval compressed club, composed of four joints.

Sp. 1. *Richesianum*.

Toxicum Richesianum. Latr. *Gen. Crust. et Ins.* 2 tab. 9, fig. 9.

Inhabits the East Indies.

GENUS CXCVII. *SARROTRIUM*. Illig. Fabr.

HISPA. Linn. Marsh.

TENEBRIO. De Geer.

ORTHOCERUS. Latr.

Antennæ with the last six joints forming a thick, fusiform, downy mass.

Sp. 1. *Muticum*.

Sarrotrium muticum. Payk. Fabr.

Hispa mutica. Pinn. Marsh.

Orthocerus hirticornis. Latr.

Inhabits sandy places. In Britain it is rare, or at least very local. It has been found in gravel pits near Norwich, by Mr Joseph Hooker; in a similar situation near Hampstead, by Mr Stephens; and in the sandy shores near Swansea, in South Wales, it is very abundant in the months of June and July.

DIVISION II.

Body linear. Thorax longer than broad. Antennæ not moniliform, gradually thickening from the third joint; the extremity more or less perfoliated. Maxillæ simple, not unguiculated.

GENUS CXCVIII. *HYPOPHLEUS*. Fabr. Latr.

IPS. Rossi, Olivier.

Antennæ from the fifth joint perfoliated. Labrum exerted. Mentum short, almost transverse-linear. Thorax elongate-quadrate, margined.

Sp. 1. *Bicolor*.

Hypophleus bicolor. Fabr. Latr.

Ips bicolor. Olivier.

Inhabits under the bark of the elm.

DIVISION III.

Antennæ not moniliform. Body oval, or nearly orbicular; a little longer than broad.

Subdivision I.

Antennæ not serrated at their extremities.

GENUS CXCIX. *PHALERIA*. Latr.

TENEBRIO. Fabr.

Anterior tibiae elongate-trigonal. Tarsi short. Antennæ gradually thickening towards their extremities, where they are perfoliated. Body oval.

Sp. 1. *Cadaverina*.

Tenebrio cadaverina. Fabr.

Inhabits sandy places.

GENUS CC. *DIAPERIS*. Geoff. Fabr. Oliv. Lam.

Chrysomela. Linn. Marsh.

TENEBRIO. De Geer.

Antennæ gradually enlarging towards their extremi-

* The Genus BOROS of Herbst, the type of which is *Hypophaus boros* of Fabricius, is unknown to us.
† An artificial family.

ties, from the fourth joint perfoliated. Body nearly hemispheric, very convex above.

Sp. 1. Boleti.

Diaperis boleti of authors.

Chrysomela boleti. Linn. Marsh.

Inhabits the boleti of trees.

GENUS CCI. EUSTROPHUS. Latr.

MYCETOPHAGUS. Fabr.

Antennæ gradually enlarging towards their extremities. Thorax large, almost semicircular. Head much deflexed.

Sp. 1. Dermestoides.

Mycetophagus dermestoides. Fabr.

Eustrophus dermestoides. Latr.

GENUS CCII. TETRATOMA. Herbst, Fabr. Payk.

Antennæ terminated by a club of four joints, the other joints very small. Body oval. Tibiæ not spiny.

Sp. 1. Fungorum.

Tetratoma fungorum. Fabr. Payk. Latr.

Inhabits Europe.

GENUS CCIII. LEIODES. Latr.

ANISOTOMA. Illig. Fabr.

SPHERIDIUM. Olivier.

TETRATOMA. Herbst.

Antennæ abruptly terminated by a five-jointed club, the eighth joint (the second of the club) very small. Thorax almost hemispheric. Tibiæ spinose.

Sp. 1. Picea.

Anisotoma piceum. Illiger.

Anisotoma picea. Panzer.

Leiodes picea. Latr.

Inhabits Europe.

GENUS CCIV. TRACHYSCELIS. Latr.

MYCETOPHAGUS. Fabr.

Antennæ abruptly terminated by a much perfoliated six-jointed club. Body rounded, elevated. Feet formed for digging. Tibiæ very spiny.

Sp. 1. Aphodioides.

Trachyscelis aphodioides. Latr.

Inhabits Egypt.

GENUS CCV. COSSYPHUS. Oliv. Fabr. Herbst, Latr.

Head concealed under the thorax. Scutellum distinct.

Abdomen included in a canal formed by the elytra. Feet compressed. Labium naked. Mentum transverse cordate-quadrate. Maxillary palpi, elongate; the last joint securiform. Mandibles abruptly attenuated.

Sp. 1. Depressus.

Cossyphus depressus. Fabr. Oliv. Herbst, Latr.

Inhabits the East Indies.

Sp. 2. Hoffmannseggii.

Cossyphus Hoffmannseggii. Latr.

Inhabits Barbary and Portugal.

Subdivision 2.

Antennæ terminated by joints resembling in their form the teeth of a saw.

GENUS CCVI. ELEDONA. Latr.

BOLITOPHAGUS. Illig. Fabr.

OPATRUM. Oliv. Marsh.

DIAPERIS. Olivier.

Palpi filiform; maxillary ones with their last joint almost cylindric. Antennæ arcuate. Body oval, convex, generally rough. Thorax transverse, emarginate before; the side often with acute margins.

Sp. 1. Agaricola.

Eledona agaricola. Latr.

Opatrum agaricola. Oliv. Marsh.

Bolitophagus agaricola. Illig. Fabr.

Inhabits Boleti and other Fungi.

GENUS CCVII. EPITRAGUS. Latr.

Maxillary palpi with the last joint large obtrigonal.

Antennæ with the four last joints dentiform. Mentum very large. Body elliptic or oblong. Thorax quadrate, or trapeziform.

Sp. 1. Fuscus.

Epitragus fuscus. Latr.

Inhabits Cayenne.

GENUS CCVIII. CNODALON. Fabr. Latr.

Maxillary palpi with the last joint very large, securiform. Antennæ with the six last joints dentiform. Mentum not very large. Body oval, very convex. Thorax transverse.

Sp. 1. Viride.

Cnodalon viride. Latr. *Gen. Crust. et Ins.* 2 tab. 10. fig. 1.

Inhabits the West Indies.

DIVISION IV.

Antennæ nearly or quite filiform, with their extremities simple.

Subdivision 1.

Mandibles with their extremities bifid.

GENUS CCIX. HELOPS. Fabr. Oliv. Lam. Illig. Latr. Rossi.

TENEBRIO. Linn.

Maxillary palpi terminated by a securiform joint. Antennæ as long or longer than the thorax. Thorax quadrate or semicircular. Body convex.

Obs. This genus is artificial; it comprehends the genera *Helops*, *Platynotus*, and part of *Melandrya* of Fabricius, and part of the genus *Serrophthalmus* of Illiger, and the rejected genus *Helea* of Latreille.

Sp. 1. Lanipes.

Helops Lanipes. Fabr. Latr. Oliv.

Tenebrio Lanipes. Linn.

Inhabits Europe.

GENUS CCX. PYTHO. Latr. Fabr.

TENEBRIO. Linn.

CUCUJUS. Paykull.

Maxillary palpi terminated by a large almost obtrigonal joint. Antennæ shorter than the thorax. Body depressed. Thorax almost orbicular.

Sp. 1. Caruleus.

Pytho caruleus. Latr. Fabr.

Cucujus caruleus. Paykull.

Tenebrio depressus. Linn.

Inhabits the mountains of France, Germany and Sweden, under the bark of trees.

GENUS CCXI. HALLOMENUS. Hellwig, Payk. Latr.

DIREA. Fabr.

SERROPALPUS. Illiger.

DINOPHORUS. Illiger.

Palpi almost filiform; the last joint of the maxillary ones almost cylindric.

Sp. 1. Humeralis.

Hallomenus humeralis. Panzer.

Hallomenus bifunctatus. Paykull.

Serrophthalmus humeralis. Illiger, *Col. Bor.* 1. 134.

Direa humeralis. Fabr.

Inhabits Boleti, and under the bark of trees.

Subdivision 2.

Mandibles with their points entire. Tarsi with denticulated nails.

GENUS CCXII. CISTELA. Fabr. Latr. Lam. Oliv.
CHRYSEMELA. Linn.
MORDELLA. Geoffroy.
Body ovate. Antennæ serrated. Feet rather long.
Sp. 1. *Ceramboides*.
Cistela ceramboides. Fabr. Latr. Oliv.
Chrysomela ceramboides. Linn.
Inhabits Europe.

FAMILY 3. *Melyandrida*.

Four anterior tarsi with the last joint but one bilobate.
Maxillary palpi with the last joint large, securiform, or obtriginate.

DIVISION I.

Hinder tarsi with entire joints.
GENUS CCXIII. SERROPALPUS. Oliv. Paykull, Illig.
Latr.

DIRCEA. Fabr.
Antennæ filiform. Body almost cylindric, and very long.
Sp. 1. *Striatus*.
Serrophalpus striatus. Paykull, Illig. Latr.
Dircea barbata. Fabr.
Inhabits Europe.
GENUS CCXIV. *DIRCEA*. Fabr.
ORCHESIA. Latr.
HALLOMENUS. Illig. Paykull, Hellwigg.
MEGATOMA. Herbst.

MORDELLA. Marsham.
Hinder feet formed for leaping. Antennæ clavate.
Body elliptic.
Sp. 1. *Micans*.
Dircea micans. Fabr.
Hallomenus micans. Paykull.
Serrophalpus micans. Illiger, Col. Bor. 1. 135.
Megatoma ficea. Herbst.
Mordella boleti. Marsh.
Orchesia micans. Latr.
Inhabits Boleti.

DIVISION II.

Tarsi altogether with their last joint but one bilobate.
GENUS CCXV. MELANDRYA.* Fabr. Latr.
CHRYSEMELA. Linn.
SERROPALPUS. Illiger, Bosc.
Antennæ simple, filiform. Maxillary palpi terminated by an elongate securiform joint. Body nearly elliptic.
Thorax trapezoid, broad behind.

Sp. 1. *Caraboides*.
Chrysomela caraboides. Linn.
Serrophalpus caraboides. Olivier, Illiger.
Melandra serrata. Fabr. Latr.
Criocertis caraboides. Marsh.
Inhabits rotten trees.
GENUS CCXVI. LAGRIA. Fabr. Oliv. Lam.
CHRYSEMELA. Linn.
CANTHARUS. Geoff.
TENEBRIO De Geer.

Antennæ simple, insensibly growing thicker towards their extremity. Maxillary palpi double the size of the labial palpi, with the last joint large, securiform; labial palpi with the last joint ovate. Body oblong, (generally villose.)

Sp. 1. *Hirta*.
Lagria hirta. Fabr. Latr.
Chrysomela hirta. Linn.

Inhabits Europe.
GENUS CCXVII. NILIO. Latr.
EGITHUS. Fabr.
COCCINELLA. Fabr.
Antennæ filiform, simple. Maxillary palpi terminated by an obtriginate joint. Body hemispheric.
Sp. 1. *Villosus*.
Egithus marginatus. Fabr.
Nilio villosus. Latr.
Inhabits Cayenne.
GENUS CCXVIII. CALOPUS. Fabr. Oliv. Payk. Latr.
CERAMBYX. Linn. De Geer.
Antennæ filiform, serrated. Body narrow, very much elongated, almost linear. Maxillary palpi terminated by a securiform joint.
Sp. 1. *Serraticornis*.
Calopus serraticornis. Fabr. Oliv. Latr.
Cerambyx serraticornis. Linn.
Inhabits northern Europe.

TRIBE III. PYROCHROIDES.

Head cordiform, abruptly strangulated at its junction with the thorax. Tarsi with their penultimate joints all bilobate. Body elongate, depressed, or convex and cylindric. Thorax almost cordate.

DIVISION I.

Antennæ pectinated, serrated, or branched.
GENUS CCXIX. DENDROIDES. Latr.
Antennæ branched. Thorax conic.
Sp. 1. *Canadensis*.
Dendroides canadensis. Latr.
Inhabits Canada.
GENUS CCXX. PYROCHROA. Fabr. Geoff. De Geer, Oliv. Latr.
CANTHAERIS. Linn.
Antennæ pectinated or serrated. Thorax orbicular.
The prevailing colour in this genus is red and black.
Sp. 1. *Rubens*.
Pyrochroa rubens. Fabr. Lat. Oliv.
Inhabits Europe.
Sp. 2. *Coccinea*.
Cantharis coccinea. Linn.
Pyrochroa coccinea. Fabr. Latr.
Inhabits France, Germany, and England.

DIVISION II.

Antennæ simple.
GENUS CCXXI. SCRAPTIA. Latr.
Labial palpi terminated by a semilunar, or large triangular joint. Thorax almost semicircular.

Sp. 1. *Fusca*.
Scraptia fusca. Latr.
Inhabits France.
GENUS CCXXII. NOTOXUS. Geoff. Oliv. Illig. Latr.
MELÖE. Linn. Donovan.
ANTHICUS. Paykull, Fabr.
Labial palpi terminated by a small truncate joint. Thorax almost cordiform, produced into a porrected horn in front.

Sp. 1. *Monoceros*.
Melöe monoceros. Linné, Donovan.
Notoxus monoceros. Olivier, Illiger, Latr.
Anthicus monoceros. Fabr. Payk.
Inhabits Europe.

* *Hypulus quercinus* of Paykull is possibly referable to this genus.

GENUS CCXXXIII. ANTHICUS. Payk. Fabr. Leach.

NOTOXUS. Illiger, Latr.

LYTTA. Marsham.

Labial palpi terminated by a small truncate joint. Thorax almost cordiform, not anteriorly produced.

Sp. 1. *Fusca*.

Lytta fusca. Marsham.

Inhabits Europe.

Sp. 2. *Antherinus*.

Anthicus antherinus. Payk. Fabr.

Notoxus antherinus. Latr. Illiger.

Lytta antherina. Marsham.

Inhabits Europe.

TRIBE IV. MORDELLIDES.

Head cordiform, abruptly strangled at its junction with the thorax. Hinder tarsi (sometimes the others) with their penultimate joint entire. Body elevated, arcuate, laterally compressed, and terminated by a point. Head very large. Elytra very short, or very narrow and pointed behind. Hinder feet large. Tibiæ with spurs.

GENUS CCXXXIV. RHIPIPHORUS. Bosc, Fabr. Payk. Oliv. Latr.

MORDELLA. Linn. Marsh.

Tarsi with all the joints simple. Palpi almost filiform. Antennæ pectinated or flabellate. Scutellum none, or concealed.

Sp. 1. *Paradoxus*.

Mordella paradoxa. Linn.

Rhipiphorus paradoxus. Latr.

Inhabits Europe. It is extremely rare. The larvæ inhabit the nests of *Vespa crabro*, (the hornet).

Mordella paradoxa of Marsham, which is distinct from the Linnean species, has been found in the nest of a wasp, perhaps in that of *Vespa vulgaris*.

GENUS CCXXXV. MORDELLA. Linn. Geoff. Fabr. Latr. Marsh.

Tarsi with all their joints simple. Maxillary palpi terminated by a securiform joint. Antennæ simple, or very slightly serrated. Scutellum distinct.

Sp. 1. *Aculeata*.

Mordella aculeata. Linn. Fabr. Latr. Oliv.

Inhabits Europe.

GENUS CCXXXVI. ANASPIS. Latr. Geoff.

MORDELLA. Linn. Fabr. Oliv. Marsh.

Penultimate joint of the four anterior tarsi bilobate. Maxillary palpi with the last joint securiform. Scutellum none.

Sp. 1. *Frontalis*.

Mordella frontalis. Fabr. Oliv. Payk. Marsham.

Anaspis frontalis. Latr.

Inhabits flowers in Europe, especially of umbellate plants.

Subdivision 2.

Head not produced into a rostrum, bearing antennæ. Antennæ simple. Tarsi with bifid nails.

TRIBE V. CANTHARIDES.

Head large, cordiform. Neck distinct. Mandibles not notched at their points. Thorax almost quadrate, or cordiform. Elytra flexible. Tarsi generally with entire joints.

FAMILY I. Cerocomatida.

Antennæ clavate, or gradually thickening towards their extremity.

GENUS CCXXXVII. CEROCOMA. Geoff. Schæff. Fabr. Oliv. Latr.

MELŒ. Linn.

Antennæ (of the males) irregular, nine-jointed, the last joint very large. Elytra horizontal.

Sp. 1. *Schefferi*.

Melœ Schefferi. Linn.

Cerocoma Schefferi. Latr. Fabr. Oliv.

Inhabits the south of Europe.

GENUS CCXXXVIII. MYLABRIS. Fabr. Oliv. Lamarck, Latr.

Antennæ eleven-jointed, terminated by an arcuate mass, ending in a point. Elytra deflexed-subrounded.

Sp. 1. *Decempunctata*.

Mylabris Decempunctata. Fabr. Oliv. Latr.

Inhabits southern France.

FAMILY II. Meloida.

Antennæ of equal thickness, tapering towards their points, or subclavate, as long or longer than the thorax, composed of globular or obconic joints.

DIVISION I.

Penultimate joint of all the tarsi bifid.

GENUS CCXXXIX. TETRAONYX. Latr.

Antennæ subfiliform, scarcely gradually somewhat thicker. Thorax short, transverse, quadrate.

Sp. 1. *Octomaculatus*.

Tetraonyx octomaculatus. Latreille, *Voyage de M. Alex. de Humboldt*, &c. p. 237.

DIVISION II.

Tarsi with all their joints entire.

Subdivision 1.

Elytra covering the whole abdomen; their suture straight. Wings in all.

GENUS CCXXX. HORIA. Fabr. Oliv. Latr.

Head as broad as the thorax. Antennæ straight, compressed, inserted before the eyes. Palpi with their last joint oval. Tarsi with their nail denticulate beneath. Body thick.

Sp. 1. *Maculata*.

Horia maculata. Fabr. Oliv. Latr.

Inhabits American islands.

GENUS CCXXXI. CISSITES. Latr. (rejected by this author), Leach.

HORIA. Latr. Fabr. Oliv.

Head narrower than the thorax. Antennæ straight, compressed, inserted before the eyes. Palpi with their last joint oval. Tarsi with their nails denticulated beneath. Body thick.

Sp. 1. *Testacea*.

Horia testacea. Latr. Fabr. Oliv.

Inhabits Tranquebar.

GENUS CCXXXII. CENAS. Latr.

MELŒ. Linn.

LYTTA. Fabr.

CANTHARIS. Olivier.

Antennæ crooked, inserted between the eyes. Palpi with the last joint cylindric. Body elongate, rounded.

Sp. 1. *Afer*.

Melœ afer. Linn.

Lytta afer. Fabr.

Cenas afer. Latr.

Inhabits Barbary.

Subdivision 2.

Elytra covering only a part of the Abdomen; short, oval, diverging at the suture. Wings none.

GENUS CCXXXIII. MELŒ. Linn. Geoff. De Geer, Fabr. Pallas, Olivier, Lamarck, Mayer, Latr. Leach. Abdomen very large, generally soft. Antennæ various.

In the 11th volume of the *Transactions of the Linnean Society of London*, two papers by Dr. Leach, on the species of this genus, may be found, in which the species are arranged, from the structure of their antennæ, into the following sections.

* Antennæ filiform.

- A. Longer than the thorax and head.
- B. Shorter than the thorax and head.
 - a. The terminal joint emarginate.
 - b. The terminal joint entire.

** Antennæ thicker externally.

- A. Thorax elongate.
- B. Thorax transverse.

*** Antennæ thicker, and curved in the middle.

FAMILY III. *Cantharida*.

Antennæ composed of cylindric or obconic joints, longer than the thorax.

GENUS CCXXXIV. CANTHARIS. Geoff. De Geer, Olivier, Lamarck, Latreille.

MELŒ. Linn.

LYTTA. Fabr. Marsh.

Elytra soft, elongate, linear, with the sides somewhat inflexed, the back convex, rounded. Maxillæ with two membranaceous lacinæ, the external one acute within, subuncinate. Antennæ with the first joint larger than the others; the second very short, transverse; the rest obconic; the last ovoid.

Sp. 1. *Vesicatoria*, (*Spanish fly*).

Melœ vesicatorius. Linn.

Cantharis vesicatoria. De Geer, Geoff. Oliv. Latr.

Lytta vesicatoria. Marsh. Fabr.

Inhabits Europe; is found on the ash, but is rare in England; it is the common *blister-fly* of our shops.

GENUS CCXXXV. ZONITIS. Fabr. Latr.

APALUS. Oliv.

Elytra elongate, linear, soft, covering the whole of the abdomen, the sides a little inflexed. Maxillæ not produced. Antennæ with the first joint of the same length with the third; the second a little shorter, obconic; the third and following cylindric; the last fusiform, abruptly terminated by a short point.

Sp. 1. *Præusta*.

Zonitis præusta. Fabr. Latr.

Inhabits southern Europe.

GENUS CCXXXVI. NEMOGNATHA. Illiger, Latr.

ZONITIS. Fabr.

Elytra elongate, linear. Maxillæ very much produced, filiform, and curved.

Sp. 1. *Vittata*.

Zonitis vittata. Fabr.

Nemognatha vittata. Latr. Illiger.

GENUS CCXXXVII. APALUS. Oliv. Latr. Fabr.

Elytra abruptly attenuated towards their extremity. Antennæ with the two first joints shorter than the third.

Sp. 1. *Apicalis*.

Sitaris apicalis. Latr. *Gen. Crust. et Ins.* ii. 222.

Apalus apicalis. Latr. *Consid.*

Inhabits southern France.

Subdivision 3.

Head produced into a rostrum bearing antennæ. Body nearly linear. Thorax cylindric. Antennæ setaceous or filiform, composed of elongate, cylindric joints. Maxil-

lary palpi terminated by a large obtrigonal joint. Tarsi with the penultimate joints bilobate. Nails simple.

TRIBE VI. CEMEDIDES.

Antennæ filiform or setaceous. Rostrum not very flat, and dilated at its extremity.

GENUS CCXXXVIII. CEMEDERA. Latr. Oliv.

NECYDALIS. Linn. Fabr.

Antennæ inserted at the anterior internal margin of the eyes. Rostrum not elongate. Eyes prominent. Elytra subulate. Palpi with the last joint broader than the penultimate joint.

Sp. 1. *Carulea*.

Necydalis carulea. Linnæus, Fabricius.

Oedemera carulea. Latreille, Olivier.

Inhabits Europe.

GENUS CCXXXIX. STENOSTOMA. Latreille.

LEPTURA, Fabricius.

Antennæ inserted on the rostrum beyond the eyes. Rostrum elongate, acute. Eyes not prominent. Elytra long, flexible, not subulate. Palpi with the last joint cylindric.

Sp. 1. *Rostrata*.

Leptura rostrata. Fabricius.

Oedemera rostrata. Latreille, *Gen. Crust. et Ins.*

Stenostoma rostrata. Latr. *Considerat.* 217.

GENUS CXXL. MYCTERUS. Clairville, Olivier.

RHINOMACER. Fabr. Latr.

MYLABRIS. Schæffer.

Antennæ inserted before the eyes on the rostrum. Rostrum elongate, narrow. Eyes globose, prominent. Elytra hard. Palpi with the last joint compressed.

Sp. 1. *Curculionides*.

Rhinomacer curculionides. Fabricius, Latreille.

Mycterus griseus. Clairville.

Inhabits Europe; and has been taken in South Devon by Mr J. Cranch of Kingsbridge.

TRIBE VII. SALPINGIDES.

Antennæ thicker at their extremities. Rostrum very flat, and dilated at its extremity.

GENUS CXXLI. SALPINGUS. Illiger.

CURCULIO. Linn. De Geer, Marsh.

ANTHRIBUS. Fabricius, Paykull, Panzer, Clairville.

RHINOSINUS. Latreille.

Antennæ inserted before the eyes. Elytra rigid.

Sp. 1. *Roboris*.

Anthribus roboris. Paykull, Fabricius, Clairville.

Rhinosinus roboris. Latreille.

Curculio ruficollis? Linnæus.

Inhabits Europe, beneath the bark of trees.

SECTION III. TETRAMERA.

Tarsi with four joints.

DIVISION I.

RYNCHOPHORI. Latreille.

Head anteriorly rostrated; the mouth at the apex of the rostrum.

TRIBE I. BRUCHIDES.

Palpi obvious, filiform, not very minute. Rostrum broad. Labrum exerted. Antennæ eleven-jointed; subclavate, with the club formed of distinct joints, in some; filiform, or gradually thicker, towards their points, in others; serrated, or pectinated.

GENUS CXXLII. PLATYRHINUS. Clairville.

ANTHRIBUS. Fabricius, Geoffroy, Paykull, Latr.

MACROCEPHALUS. Olivier.

Antennæ clavate, the club elongate. Eyes not emarginate. Elytra covering the anus above. Body ovate-oblong. Abdomen somewhat elongate-quadrate, rounded behind. Thorax somewhat quadrate, a little narrower before. Rostrum broad. Head scarcely narrower at the base.

Sp. 1. Latirostris.

Anthribus latirostris. Fabricius, Latreille, Paykull.

Platyrhinus latirostris. Clairville.

Macrocephalus latirostris. Olivier.

Inhabits woods in Europe.

GENUS CCXLIII. *ANTHRIBUS.* Paykull, Fabricius, Latreille, Geoffroy.

MACROCEPHALUS. Olivier.

Antennæ clavate, the club ovate, abrupt, incrassated. Eyes not emarginate. Elytra covering the anus above. Body short, oval, thick. Thorax transverse, broader behind, lobated. Rostrum short.

Sp. 1. Scabrosus.

Anthribus scabrosus. Paykull, Fabricius, Latreille.

Macrocephalus scabrosus. Olivier.

Inhabits the elm.

GENUS CCXLIV. *RHINOMACER.* Olivier, Fabricius.

ANTHRIBUS. Paykull, Latreille.

Antennæ clavate. Eyes not emarginate. Elytra covering the anus above. Abdomen elongate, narrow. Thorax roundish, nearly equally broad. Rostrum at the base much narrower than the head, the longitudinal diameter many times exceeding the breadth. Tarsi, with the second joint not including the third.

Sp. 1. Attelaboides.

Anthribus rhinomacer. Paykull, Latreille.

Rhinomacer attelaboides. Fabricius.

Inhabits pine trees.

GENUS CCXLV. *BRUCHUS.* Linn. De Geer, Olivier, Fabricius, Latreille, Marsham.

MYLABRIS. Geoffroy.

Antennæ nearly filiform. Eyes emarginate, for the insertion of the antennæ. Body short, oval, thick. Elytra not covering the anus above.

Sp. 1. Pisi.

Bruchus pisi. Linn. Fabr. Oliv. Latr.

Inhabits southern Europe and northern America.

TRIBE II. CURCULIONIDES.

Palpi very small, conic-subulate, scarcely discernible. Rostrum rounded, thick, often proboscis shaped. Labrum none. Antennæ with distinct joints, the eighth or ninth generally clavate, the club regular, the joints coriaceous. Head from the eyes more or less narrowed, distinctly produced into a rostrum. Mandibles small or minute. Mentum not cylindric-cordate. Body very rarely cylindric. Anterior tibiae never triangular.

DIVISION I.

(Recticornes; straight horns.)

Antennæ straight, not geniculated at the second joint. Body of all, from the base of the thorax, narrower, not cylindric.

GENUS CCXLVI. *BRENTUS.* Fabricius, Olivier, Herbst, Latreille, Lamarck.

CURCULIO. Linnæus, De Geer.

Mandibles generally prominulous, the apex generally bidentate. Body very long, somewhat cylindric, narrower before, straight, perfect. Thorax elongate-ovate, truncate before and behind. Elytra rigid, elongate, linear, with the apex often spinose. Feet elongate, strong, the anterior ones longest. Mentum corneous,

cordate-subovate, apex emarginate, base rounded, concave in front.

Sp. 1. Anchorago.

Brentus anchorago. Fabricius, Latreille.

Inhabits America.

GENUS CCXLVII. *CYLAS.* Fabr.

BRENTUS. Olivier, Fabricius.

Mandibles short, the apex bidentate. Mentum suborbiculate. Body elongate, narrow before. Thorax articulated, dilated in front, and ovate-subglobose, strangled behind. Elytra with prominent shoulders. Tarsi with the last joint but one bifid.

Sp. 1. Brunneus.

Cylus brunneus. Latreille.

Brentus brunneus. Herbst, Fabr.

Inhabits Senegal.

GENUS CCXLVIII. *ATTELABUS.* Linn. Fabr. Oliv. Latr.

CURCULIO. De Geer.

Head behind simply elongate, produced with no neck. Tibiæ with their points furnished with a double hook. Body ovate. Abdomen quadrate, rounded behind. Labium corneous, quadrate, the middle of the upper margin emarginate, obtusely unidentate.

Sp. 1. Curculionoides.

Attelabus curculionoides. Linnæus, Latreille, Olivier.

Inhabits the nut tree and willow.

GENUS CCXLIX. *APODERUS.* Olivier, Latreille.

ATTELABUS. Linnæus, Fabricius, Paykull.

Head with a distinct neck. Tibiæ with one hook at their joints. Body ovate. Abdomen quadrate, rounded behind. Labium corneous, quadrate, the middle of the upper margin emarginate, obtusely unidentate.

Sp. 1. Coryli.

Attelabus coryli. Linn. Fabr. Payk. Latr.

Curculio coryli. Marsham.

Inhabits the nut tree.

GENUS CCL. *RYNCHITES.* Herbst, Latr.

CURCULIO. Linnæus, De Geer, Marsham.

RHINOMACER. Geoffroy, Clairville.

ATTELABUS. Fabricius, Olivier.

Head elongate behind the eyes, with no neck. Clypeus dentate. Tibiæ with very short heels. Abdomen quadrate, rounded behind. Body ovate, narrowly produced before. Thorax conic-cylindric, broader behind, (often with a spine on each side in the male). Labium membranaceous, small, the apex rounded, villose, entire.

Sp. 1. Bacchus.

Curculio bacchus. Linnæus, Marsham.

Rynchites bacchus. Herbst, Latreille.

Attelabus bacchus. Fabricius.

Inhabits Europe, frequenting the nut and vine.

GENUS CCLI. *APTION.* Herbst, Latreille, Kirby.

CURCULIO. Linnæus, Marsham.

RHINOMACER. Geoffroy, Clairville.

ATTELABUS. Fabricius, Olivier.

Eyes prominulous. Head elongate behind. Abdomen subovate. Tibiæ with obsolete heels. Labium subquadrate, entire.

Obs. The Rev. William Kirby has given an admirable paper to the Linnæan Society of London on the species of this genus, which is published in the ninth volume of their Transactions. He has added a supplement, which is published in the tenth volume.

GENUS CCLII. *RHAMPHUS.* Clairville.

Tarsi with the last joint but one bifid, cordiform. Head globose. Eyes approximate. Hinder feet formed for leaping. Tibiæ with obsolete heels. Body short, oval.

Sp. 1. Flavicornis.

Ranphus flavicornis. Latreille, Clairville.

Inhabits the sloe and aspen.

GENUS CCLIII. BRACHYCERUS. Olivier, Herbst, Fabricius, Latreille.

CURCULIO. Linnæus, De Geer.

Tarsi short, with entire joints. Lip crustaceous, sub-orbicular; the apex truncate, retuse, entire. Body ovate, thick, gibbous. Eyes lateral. Tibiæ with their two points produced, the internal spine bifid. Thorax transverse. Abdomen large, subglobose, ovate, or oval.

Sp. 1. Agirus.

Brachycerus agirus. Fabr. Latr.

Inhabits Africa.

DIVISION II.

(Fracticornes; geniculated horns.)

Antennæ geniculated, the basal joint very much elongated, generally received in a lateral oblique groove, (at the base at least,) or the sides of the rostrum.

(Antennæ in all clavate, the club generally composed of firmly connected joints, the last acute. Tarsi with the last joint but one bifid, or emarginate above, cordate.)

Subdivision 1.

Antennæ inserted beyond the base of the rostrum, larger than the head, the club distinctly many-jointed, ovate. Mandibles generally obtuse. Tibiæ at the apex ciliated with spines, in a few terminated by a strong hook. Body ovate, or elliptic. Colour various.

GENUS CCLIV. CURCULIO. Linnæus, Fabricius, Clairville, Olivier.

BRACHYRHINUS. Latreille.

Body ovate, convex, narrower before. Thorax round, or conic-cylindric, narrower than the base of the elytra. Scutellum extremely minute. Abdomen ovate-conic, subovate, or globose. Lip minute. Antennæ eleven-jointed. Hinder feet not formed for leaping.

Sp. 1. Imperialis, (diamond beetle.)

Curculio imperialis. Linn. Fabr. Oliv.

Brachyrhinus imperialis. Latreille.

Inhabits Brasil.

Sp. 2. Argentatus.

Curculio argentatus. Gmelin, Marsh. Fabr.

Brachyrhinus argentatus. Latreille.

Inhabits Europe.

GENUS CCLV. LIXUS. Latreille, Fabricius.

CURCULIO. Linnæus, Geoffroy, Marsham, Fabricius.

Body elongate-ovate. Rostrum as broad as the head. Lip small, entire, transverse-quadrate, corneous, narrower than the mentum.

Sp. 1. Sulcirostris.

Curculio sulcirostris. Linnæus, Fabricius, Marsham.

Inhabits thistles.

Sp. 2. Paraplecticus.

Curculio paraplecticus. Linn.

Lixus paraplecticus. Fabricius, Latreille.

Inhabits the *Phellandrium aquaticum*.

GENUS CCLVI. RYNCHÆNUS. Fabricius, Olivier.

CURCULIO. Linn. Geoff. Lam. Latr.

Body oblong, ovate, twice as long as broad. Antennæ with the club three-jointed beginning at the ninth joint, or eight four-jointed beginning at the eighth joint. Wings in all.

Sp. 1. Tortrix.

Curculio tortrix. Linnæus, Marsham, Latreille.

Rynchænus tortrix. Fabricius.

Inhabits Europe.

Sp. 2. Abietis.

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Curculio abietis. Linnæus.

Inhabits Europe in the pine. It was discovered as a native of Britain by Dr Malden, who took it near Hame-ton, in Scotland.

Sp. 3. Pini.

Curculio pini. Linn. Marsham.

Inhabits the *Pinus sylvestris*.

GENUS CCLVII. LIPARUS. Oliv.

CURCULIO. Linnæus, Latreille, Marsham.

RYNCHÆNUS. Fabricius.

Body oblong ovate, twice as long as broad. Antennæ with the club three-jointed beginning at the ninth joint, or four-jointed beginning at the eighth joint. Wings none.

Sp. 1. Germanus.

Curculio Germanus. Linnæus, Marsham.

Rynchænus fusco-maculatus. Fabricius.

Inhabits Europe. It occurs in Britain, near Dover and Hastings.

Sp. 2. Triguttatus.

Curculio triguttatus. Marsham, Latreille.

Curculio vau of Marsham, is merely a variety of this insect.

Inhabits Europe.

GENUS CCLVIII. CRYPTORYNCUS. Illiger.

CURCULIO. Linnæus, Marsham.

RYNCHÆNUS. Fabricius.

Body round-oval, half as long again as broad. Abdomen short, triangular-quadrate. Anus naked. Rostrum applied to the breast. Coleoptra subquadrate, the diameters nearly equal. Hinder feet not formed for leaping. Mentum corneous, subobtriginate.

Sp. 1. Erysimi.

Rynchænus erysimi. Fabr.

Cryptoryncus erysimi. Illiger.

Inhabits Europe.

GENUS CCLIX. CIONUS. Clairville, Latreille.

RYNCHÆNUS. Fabr.

CURCULIO. Linn. Geoff. Oliv.

Body quadrate-ovate, thick, a little longer than broad. Abdomen large, subquadrate, a little narrower, and rounded behind. Anus not naked. Rostrum applied to the breast. Coleoptra convex, as broad as long, inflexed behind. Hinder feet not formed for leaping.

Sp. 1. Scrophulariæ.

Curculio scrophulariæ. Linnæus, Marsham.

Rynchænus scrophulariæ. Fabricius.

Cionus scrophulariæ. Clairville.

Inhabits the *Verbascum* and *Scrophularia*.

Latreille supposes *Rynchænus*, *Thapsus*, *Scrophulariæ*, and *Verbasci* of Fabricius, to be but varieties of one species.

GENUS CCLX. ORCHESTES. Olivier, Illiger.

RYNCHÆNUS. Clairville, Fabricius, Latreille.

CURCULIO. Linnæus, Marsham.

Body ovate. Abdomen elongate-quadrate, rounded behind. Elytra inflexed behind, covering, or at least touching the anus. Hinder feet formed for leaping.

Sp. 1. Atni.

Curculio atni. Linnæus, Marsham.

Rynchænus atni. Fabricius.

Inhabits Europe.

Subdivision 2.

Antennæ inserted at the base of the rostrum. Tarsi reflected to the internal side of the tibiæ.

GENUS CCLXI. RHINA. Latreille.

LIXUS. Fabricius.

CURCULIO. Olivier.

Body oblong cylindric. Feet elongate, especially the

anterior ones. Tibiæ slender. Rostrum elongate, porrect, cylindric, slender, often bearded.

Sp. 1. Barbirostris.

Lixas barbirostris. Fabricius.

Rhina barbirostris. Latreille.

Inhabits Africa and India.

GENUS CCLXII. CALANDRA. Clairville, Fabricius.

CURCULIO. Linnæus, Geoffroy, Olivier.

RYNCHOPHORUS. Herbst.

Body elliptic-oval, flat above. Eyes immersed, oblong, encircling the head beneath. Rostrum thickened at the insertion of the antennæ. Elytra plain, not covering the anus above. Anus acutely prominent. Feet strong.

Sp. 1. Granaria.

Calandra granaria. Fabricius, Latreille.

Curculio granaria. Marsham.

Inhabits Europe.

GENUS CCLXIII. COSSONUS. Clairville, Fabr. Latr.

CURCULIO. Paykull, Herbst.

Body very much lengthened, sublinear, or subcylindric, narrow before. Elytra covering the anus above. Tibiæ terminated by a hook internally. Back flat, depressed.

Sp. 1. Linearis.

Cossonus linearis. Clairville, Fabricius, Latreille.

Curculio linearis. Paykull, Marsham.

Curculio parallelospedus. Herbst.

Inhabits Europe.

DIVISION II.

Head not gradually prolonged into a rostrum. Tarsi not spongy beneath.

TRIBE III. BOSTRICIDES.

Body cylindric, or globose. Head globose. Tibiæ compressed, anterior ones dentated. Antennæ eight or ten-jointed; the first joint elongate, the two or three last joints forming a large mass. Tarsi not spongy beneath. Palpi very small, generally conic, rarely filiform.

DIVISION I.

Palpi very small, conic. Antennæ forming a solid mass, shorter, or not much longer than the head.

Subdivision 1.

*Club of the antennæ commencing before the ninth joint.

GENUS CCLXIV. HYLURGUS. Latreille.

IFS. De Geer, Marsham.

SCOLYTUS. Olivier.

Tarsi with their penultimate joint bifid. Antennæ with the club commencing at the eighth joint, very little or not at all compressed.

Sp. 1. Ligniferda.

Scolytus Ligniferda. Olivier.

Hylurgus ligniferda. Latreille.

Inhabits beneath the bark of the pine.

Sp. 2. Piniferda.

Ips piniferda. Marsham.

Hylurgus piniferda. Latreille.

Inhabits Britain, perforating the pine bark.

GENUS CCLXV. TOMICUS. Latreille.

DERMESTES. Linnæus.

IFS. De Geer.

BOSTRICUS. Fabricius, Paykull.

SCOLYTUS. Olivier.

Tarsi with entire short joints. Antennæ with the club much compressed, beginning at the seventh joint, distinctly annulated. Body not linear.

Sp. 1. Tytographus.

Dermestes tytographus. Linnæus.

Ips tytographus. De Geer.

Bostrius tytographus. Fabricius, Paykull.

Ips tytographus. Marsham.

Scolytus tytographus. Olivier.

Tomicus tytographus. Latreille.

Inhabits Europe, under the bark of trees, which it gnaws into various labyrinth-like passages.

GENUS CCLXVI. PLATYPUS. Herbst, Latreille.

BOSTRICUS. Hellwig, Fabricius.

SCOLYTUS. Panzer.

Tarsi with entire long joints. Antennæ with the club much compressed, commencing at the sixth joint; annulations not or but slightly distinct. Body linear.

Sp. 1. Cylindricus.

Platypus cylindricus. Herbst, Latr.

Bostrius cylindricus. Fabricius.

Scolytus cylindricus. Olivier.

Inhabits France and Germany, under the bark of trees.

Subdivision 2.

Antennæ with the club beginning at the ninth joint.

GENUS CCLXVII. SCOLYTUS. Geoffroy, Schæffer, Olivier, Latreille.

HYLESINUS. Fabricius.

EKKOPTOGASTER. Herbst.

COPTOGASTER. Illiger.

IFS. Marsham.

Tarsi with their last joint but one bifid. Antennæ with the club compressed, obovoid, the apex rounded.

Sp. 1. Destructor.

Scolytus destructor. Oliv. Latr.

Ips scolytus. Marsham.

Hylesinus scolytus. Fabricius.

Inhabits beneath the bark of the elm.

GENUS CCLXVIII. HYLESINUS. Fabricius, Latr.

SCOLYTUS. Olivier.

BOSTRICUS. Paykull.

Tarsi with their penultimate joint bifid. Antennæ with the club little or not compressed, ovoid, the extremity pointed.

Sp. 1. Crenatus.

Hylesinus crenatus. Fabricius, Latreille.

Scolytus crenatus. Olivier.

Inhabits Europe.

DIVISION II.

Palpi very small, conic. Antennæ with the club formed of three leaf-like very long laminæ.

GENUS CCLXIX. PHLOITRIBUS. Latreille.

HYLESINUS. Fabricius.

SCOLYTUS. Fabricius.

Tarsi with the last joint but one bilobate.

Sp. 1. Oleæ.

Hylesinus oleæ. Fabricius.

Scolytus oleæ. Olivier.

Phloitribus oleæ. Latreille.

Inhabits the olive tree in France.

DIVISION III.

Palpi filiform. Antennæ with the club perfoliated or serrated. Tarsi with their joints entire.

GENUS CCLXX. BOSTRICUS. Latreille, Olivier.

LIGNIFERDA. Herbst.

APATE. Fabricius, Paykull.

DERMESTES. Linnæus.

Body convex. Thorax elevated, globular, or cubic. Maxillæ bilobate.

Sp. 1. Capucinus.

Ligniferda capucinus. Herbst.

Aphate capucinus. Fabricius, Paykull.

Bostricus capucinus. Latreille, Olivier.

Dermestes capucinus. Linnæus.

Inhabits Europe.

GENUS CCLXXI. *Psoa*. Fabricius, Latreille, Herbst.

DERMESTES. Rossi.

Body flattened above. Thorax almost quadrate. Maxillæ with one lobe.

Sp. 1. Viennensis.

Psoa viennensis. Fabricius, Latreille, Herbst.

Dermestes dubius. Rossi.

TRIBE IV. PAUSSIDES.

Body oblong and much depressed. Palpi conic-subulate. Antennæ two, or ten-jointed. Elytra truncated. Tarsi with entire joints.

GENUS CCLXXII. *Pausus*. Linnæus, Fabricius, Thunberg, Herbst, Afzelius, Donovan, Latreille.

Antennæ two-jointed, the last very large and irregular.

Sp. 1. Microcephalus.

Pausus microcephalus. Linnæus, Thunberg, Herbst, Latreille, Afzelius, Fabricius.

Inhabits Africa.

GENUS CCLXXIII. *Cerapteris*. Swederus, Donovan, Latreille.

Antennæ ten-jointed, perfoliated.

Sp. 1. Macleai.

Cerapteris macleai. Donovan, Latreille.

Inhabits New Holland.

TRIBE V. MYCETOPHAGIDES.

Body ovoid or oblong; in some depressed, in others linear. Palpi filiform or bent at their extremities. Antennæ ten or eleven jointed, thickening towards their extremities, or terminated by a perfoliated mass.

FAMILY I. *Nemosomida*.

Antennæ ten-jointed.

DIVISION I.

Antennæ with the club three-jointed, perfoliated.

GENUS CCLXXIV. *Cis*. Latreille.

Anobium. Fabricius, Illiger, Herbst, Paykull.

DERMESTES. Scopoli.

Hylesinus. Fabricius.

Ptinus. Marsham.

Antennæ twice as long as the head. Body oval, depressed.

Sp. 1. Boleti.

Dermestes boleti. Scopoli.

Anobium boleti. Fabricius, Illiger, Paykull.

Anobium bidentatum. Olivier.

Ptinus boleti. Marsham.

Inhabits the *Boletus vesicolor*.

GENUS CCLXXV. *Nemosoma*. Latreille.

DERMESTES. Linnæus.

Ips. Olivier.

Colydium. Hellwig, Herbst.

Antennæ not or scarcely longer than the head. Body linear. Head as long, or nearly as long, as the thorax.

Sp. 1. Elongatum.

Nemosoma elongatum. Latreille.

Ips elongatus. Olivier.

Colydium fasciatum. Hellwig, Herbst.
Inhabits Europe.

DIVISION II.

Antennæ with a nearly globose two-jointed club.

GENUS CCLXXVI. *Cerylon*. Latreille.

Ryzophagus. Herbst.

Lyctus. Fabricius, Panzer, Paykull.

Body elongate. Thorax quadrate, with the hinder margin straight, contiguous with the elytra. Abdomen not pedunculated.

Sp. 1. Histeroides.

Lyctus histeroides. Fabricius, Paykull, Panzer.

Ryzophagus histeroides. Herbst.

Cerylon histeroides. Latreille.

Inhabits Europe, beneath the bark of trees.

GENUS CCLXXVII. *Monotoma*. Herbst.

Cerylon. Latreille.

Lyctus. Fabricius, Paykull, Panzer.

Body elongate, linear. Thorax quadrate, with the hinder margin distant from the base of the elytra. Abdomen somewhat pedunculated.

Sp. 1. Terebrans.

Cerylon terebrans. Latreille.

Inhabits beneath the bark of trees.

Sp. 2. Juglandis.

Lyctus juglandis. Fabricius, Paykull, Panzer.

Corticaria taxicornis. Marsham.

Inhabits beneath the bark of trees.

FAMILY II. *Mycetophagida*.

Antennæ eleven jointed. Mandibles little or not at all prominent.

DIVISION I.

Antennæ with the club two-jointed.

GENUS CCLXXVIII. *Ditoma*. Latr.

Bitoma. Herbst.

Lyctus. Fabr. Payk.

Ips. Olivier.

Sp. 1. Crenata.

Bitoma crenata. Herbst.

Ditoma crenata. Latr.

Lyctus crenatus. Fabr. Payk.

Ips crenatus. Olivier.

Inhabits Europe, under the bark of dead trees.

DIVISION II.

Antennæ gradually thickening towards their extremities. Tarsi with the first joint longer than the following one.

GENUS CCLXXIX. *Mycetophagus*. Fabricius, Paykull, Oliv. Panzer, Latr.

Tritoma. Geoff.

DERMESTES. Thunberg.

Silphoides. Herbst.

Boletaria. Marsh.

Body oval. Antennæ with the last joint elongate, ovate. Maxillary palpi prominent.

Sp. 1. Quadrihustulatus.

Mycetophagus quadrihustulatus. Fabricius, Latreille, Panzer, Paykull.

Boletaria quadrihustulata. Marsham.

Inhabits fungi.

DIVISION III.

Antennæ gradually thickening towards their extremities, or with a three-jointed club.

Subdivision 1.

Tarsi with the first joint not longer than the following one. Palpi very short; the maxillary ones not, or but little, prominent. Antennæ with an abrupt club of three joints, not longer than the head. Body elongate, linear. GENUS CCLXXX. COLYDIUM. Latr. Fabr. Herbst, Paykull.

TRITOMA. Thunberg.

Ips. Olivier, Rossi.

Sp. 1. *Elongatum*.

Colydium elongatum. Fabr. Herbst, Paykull, Latr.

Ips elongatus. Olivier.

Ips linearis. Rossi.

Inhabits Europe, under the bark of trees.

Subdivision 2.

Tarsi with the first joint longer than the second. Palpi very short, the maxillary ones but little or not at all prominent. Antennæ as long as the thorax, or less. GENUS CCLXXXI. LATRIDIVS.* Herbst.

Ips. Olivier.

CORTICARIA. Marsham.

DERMESTES. Fabricius, Paykull.

Antennæ with the second joint larger than the third.

Sp. 1. *Porcatus*.

Latridius porcatus. Herbst.

Latridius minutus. Latreille.

Dermestes marginatus. Paykull.

Inhabits houses in Europe.

GENUS CCLXXXII. SILVANUS. Latreille.

TENEBRIO. De Geer.

DERMESTES. Fabricius, Panzer.

Ips. Olivier.

Colydium. Paykull, Herbst.

Corticaria. Marsham.

Antennæ with the second and following joints to the eighth joint nearly equal.

Sp. 1. *Unidentatus*.

Silvanus unidentatus. Latreille.

Dermestes unidentatus. Fabricius.

Ips unidentatus. Olivier.

Colydium unidentatum. Paykull.

Colydium planum. Herbst.

Inhabits Europe, under the bark of trees.

Sp. 2. *Frumentarius*.

Colydium frumentarium. Panzer.

Corticaria frumentaria. Marsham.

Silvanus frumentarius. Latreille.

Inhabits Europe.

Subdivision 2.

Tarsi with the first joint not longer than the following joint. Maxillary palpi prominent. Body elongate, narrow. Antennæ with the three last joints rather thicker. GENUS CCLXXXIII. MERYX. Latreille.

Thorax almost cordiform. Eyes rather prominent. Palpi clavate, the last joint sub-obtrigonal, larger than the rest.

Sp. 1. *Rugosa*.

Meryx rugosa. Latr. Gen. Crust. et Ins. xi. fig. 1.

Inhabits the East Indies.

DIVISION IV.

Antennæ cloven-jointed. Mandibles prominent or exserted.

Subdivision 1.

Mandibles small. Body long and linear. GENUS CCLXXXIV. LYCTUS. Fabricius, Paykull. Ips. Olivier.

BITOMA. Herbst.

CORTICARIA. Marsham.

Antennæ with a two-jointed club. Thorax long and linear.

Sp. 1. *Oblongus*.

Lyctus oblongus. Latreille.

Lyctus canaliculatus. Fabricius.

Ips oblongus. Olivier.

Bitoma unihunctata. Herbst.

Corticaria oblonga. Marsham.

Inhabits Europe, in old wood.

Subdivision 2.

Mandibles large. Body elongate, much depressed, nearly equally broad.

GENUS CCLXXXV. TROGOSITA. Fabricius, Olivier, Illiger, Latreille, Lamarck.

TENEBRIO. Linnæus, Marsham, Rossi.

PLATYCERUS. Geoffroy.

Thorax almost quadrate, separated from the abdomen by a remarkable interval. Antennæ moniliform, shorter than the thorax, compressed towards the apex. Labrum exerted, coriaceous, small, hairy, in front.

Sp. 1. *Mauritanica*.

Tenebrio mauritanicus. Linnæus? Rossi, Marsham.

Trogosita caraboides. Fabricius, Illiger, Paykull, Herbst, Latreille.

Trogosita mauritanica. Olivier.

Inhabits Europe. Dr Leach has seen it alive in a box of insects brought from Pará in the Brasils.

TRIBE VI. CUCUJIDES.

Body oblong and much depressed. Head not globose. Palpi filiform or thicker towards their extremities. Antennæ of the same thickness throughout, all eleven-jointed. Thorax almost quadrate, generally dentated or angulated.

DIVISION I.

Antennæ moniliform, shorter than the body.

GENUS CCLXXXVI. PARANDRA. Latreille.

ISOCERUS. Illiger.

ATTELABUS. De Geer.

TENEBRIO. Fabricius, Herbst.

Labrum very small. Palpi terminated by an oval joint. Tarsi long. Thorax quadrate, marginate.

Sp. 2. *Lævis*.

Parandra Lævis. Latreille.

Atteclabus lævis. De Geer.

Tenebrio brunneus. Fabricius.

Tenebrio furfurascens. Herbst.

Inhabits America.

GENUS CCLXXXVII. CUCUJUS. Fabricius, Olivier, Paykull.

CANTHARIS. Linnæus?

Labrum porrect, very apparent. Palpi with their last joint obconic, truncate. Tarsi short. Lip bifid.

Sp. 1. *Depressus*.

Cucujus depressus. Paykull, Olivier, Latreille, Fabricius.

Cantharis sanguinolenta. Linnæus?

Inhabits Sweden and Germany.

* The genus *Dacycerus* of Brongniart is akin to this genus.

DIVISION II.

Antennæ as long as the body, often longer, composed of elongate cylindric joints.

GENUS CCLXXXVIII. *ULEIOTA*. Latreille.

CERAMBYX. Linnæus.

BRONTES. Fabricius.

CUCUJUS. Olivier, Herbst.

Labrum porrect, very apparent. Palpi terminated by an almost conic pointed joint. Tarsi short.

Sp. 1. Flavipes.

Cerambyx planatus. Linnæus.

Uleiota flavipes. Latreille.

Brontes flavipes. Fabricius.

Cucujus planatus. Herbst.

Cucujus flavipes. Olivier, Paykull.

Inhabits Europe, beneath the bark of dead trees.

DIVISION III.

Head not gradually produced into a rostrum. Tarsi strong beneath.

Subdivision 1.

Antennæ filiform or setaceous, or slightly thickening towards their extremities. Maxillæ with no horny hook on their internal sides.

TRIBE VII. CERAMBYCIDES.

Lip much widened at its extremity, cordiform. Body elongate. Antennæ long, generally inserted in a notch in the eyes.

FAMILY I. *Prionida*.

Labrum very small, or almost none.

DIVISION I.

Antennæ moniliform, short.

GENUS CCLXXXIX. *SPONDYLIS*. Fabricius, Olivier, Latreille.

ATTELABUS. Linn.

CERAMBYX. De Geer.

Palpi with the last joint nearly obconic. Body convex. Tarsi with the penultimate joint distinctly bifid. Thorax almost orbicular, without border or teeth.

Sp. 1. Buprestoides.

Spondylus buprestoides. Fabr. Oliv. Latr.

Attelabus buprestoides. Linn.

Inhabits Europe, at the roots of the pine.

DIVISION II.

Antennæ pectinated or serrated, in all longer than the thorax.

GENUS CCXC. *PRIONUS*. Geoffroy, Fabricius, Olivier, Latreille.

CERAMBYX. Linn. Marsham.

Thorax with the sides gently sloping, dentated. Antennæ serrated, a little shorter than the body; of the male twelve, of the female eleven-jointed.

Sp. 1. Coriarius.

Cerambyx coriarius. Linn.

Prionus coriarius. Latreille, Fabricius, Olivier.

Inhabits Europe.

FAMILY II. *Cerambycida*.

Labrum very apparent, of various sizes. Antennæ inserted in a notch in the eyes.

DIVISION I.

Head vertical. Palpi almost filiform.

GENUS CCXCI. *MACROPUS*. Thunberg.

PRIONUS. Olivier.

CERAMBYX. Linn.

LAMIA. Latreille.

Body much depressed: Thorax with a moveable spine on each side, placed on a tubercle. Anterior feet of the male very long.

Sp. 1. Longimanus.

Prionus longimanus. Olivier.

Lamia longimana. Latr.

Cerambyx longimanus. Linn.

Inhabits Brasil.

GENUS CCXCII. *LAMIA*. Leach.

LAMIA. Latreille, Fabricius.

CERAMBYX. Linn. Marsham, Fabricius.

Antennæ ten-jointed, longer than the body.

This genus is divided into sections.

A. Body depressed. (*LAMIA*, Fabricius.)

Sp. 1. Edilis.

Lamia edilis. Fabricius, Latreille.

Cerambyx edilis. Linn. Marsham.

Inhabits Europe.

B. Body not depressed. (*LAMIA*, *CERAMBYX*, Fabricius.)

Sp. 2. Nebulosus.

Cerambyx nebulosus. Fabricius, Marsham.

Lamia nebulosa. Latreille.

Inhabits Europe.

Sp. 3. Textor.

Lamia textor. Fabricius, Latreille.

Inhabits Europe.

C. Body linear. Thorax not spined at the sides. (*SAPERDA*, Fabricius.)

Sp. 4. Oculata.

Cerambyx oculatus. Marsham.

Saperda oculata. Fabricius.

Lamia oculata. Latreille.

Inhabits Europe.

GENUS CCXCIII. *SAPERDA*. Leach.

CERAMBYX. Marsham.

Antennæ eleven-jointed, longer than the body. Body linear. Thorax without spines.

Sp. 1. Lineato-collis.

Cerambyx lineato-collis. Marsham.

Saperda lineato-collis. Leach, *Zoolog. Mis.* vol. i.

Inhabits England.

DIVISION II.

Head nutant. Palpi with the last joint thicker than the others.

GENUS CCXCIV. *CERAMBYX*. Linn. Fabricius, Latreille, &c.

STENOCORUS. Fabricius.

Antennæ longer than the body. Palpi with the last joint obconic, compressed. Thorax with a spine on each side.

Sp. 1. Moschatus. (Musk cerambyx.)

Cerambyx moschatus. Linn. Fabricius, Latreille, &c.

Inhabits willows in Europe, emitting, whilst alive, a fine smell, resembling the flavour of roses.

GENUS CCXCV. *STENOCORUS*. Fabricius.

CERAMBYX. Latreille.

Palpi with the last joint obtrigonal. Thorax without spines.

Sp. 1. Spinicornis.

Stenocorus spinicornis. Fabricius.

Cerambyx spinicornis. Latreille.

GENUS CCXCVI. *CLYTUS*. Fabricius.

CERAMBYX. Linn.

CALLIDIUM, Latreille.

Labial palpi with the last joint obtrigonalate. Thorax without spines, globose. Antennæ shorter than the body. Hinder thighs clavate.

Sp. 1. Arietis.

Cerambyx arietis, Linn.

Clytus arietis, Fabricius.

Callidium arietis, Latreille.

Inhabits Europe.

GENUS CCXCVII. *CALLIDIUM*, Fabricius, Latreille.

CERAMBYX, Linn. Marsham.

Labial palpi with the last joint obtrigonalate. Thorax orbicular, depressed, or but little convex. Antennæ setaceous, as long as the body. Hinder thighs abruptly clavate.

Sp. 1. Violaceum.

Cerambyx violaceus, Linn. Marsh.

Callidium violaceum, Fabricius, Latreille.

Inhabits Europe.

GENUS CCXCVIII. *NECYDALIS*, Linn. De Geer, Fabricius.

LEPTURA, Geoffroy.

MOLORCHUS, Fabricius.

Elytra subulated, not entirely covering the wings and abdomen.

Sp. 1. Rufa.

Necydalis rufa, Fabr. Latr.

Inhabits Europe.

GENUS CCXCIX. *MOLORCHUS*, Fabricius.

NECYDALIS, Linn. Marsham, Latreille.

Elytra abbreviated.

Sp. 1. Major.

Necydalis major.

Molorchus umbellaturum, Fabr.

Inhabits Europe.

FAMILY III. *Lepturida*.

Labrum very apparent. Antennæ inserted between the eyes.

GENUS CCC. *LEPTURA*, of authors.

Thorax not spined on each side.

Sp. 1. Elongata.

Leptura elongata, Fabricius, Latreille, Marsham.

Inhabits Europe.

GENUS CCCI. *RHAGIUM*, Fabricius.

LEPTURA, Latreille, Marsham.

Thorax with a spine on each side.

Sp. 1. Inquisitor.

Leptura inquisitor, Latr. Marsh.

Rhagium inquisitor, Fabricius.

Inhabits Europe.

TRIBE VIII. *Criocerides*.

Lip not cordiform. Maxillæ with their external division not resembling a two-jointed palpus. Body elongate. Thorax cylindric or quadrate.

FAMILY I. *Sagrida*.

Mandibles with their extremities not notched.

GENUS CCCII. *MEGALOPUS*, Fabricius, Latreille.

ANTIPUS? De Geer.

Antennæ almost serrated, inserted at the internal margin of the eyes, shorter than the thorax. Palpi filiform, terminated by an elongate, very pointed, and conic joint. Thorax almost quadrate. Body little lengthened.

Sp. 1. Nigricornis.

Megalopus nigricornis, Fabricius, Latreille. *Gen. Crust. et Ins.* 3. tab. 11. fig. 5.

Inhabits South America.

GENUS CCCIII. *ORSODACHNA*, Latreille.

CRIO CERIS, Geoffroy, Fabricius, Paykull, Panzer.

Antennæ simple, inserted before the eyes, as long as the thorax, or less. Maxillary palpi thick and truncate at their extremities. Body long. Thorax elongate. Eyes globose.

Sp. 1. Cerasi.

Crioceris cerasi, Fabricius.

Orsodachna chlorotica, Latreille.

Inhabits Sweden, Germany, and France.

GENUS CCCIV. *SAGRA*, Fabricius, Latreille, Herbst.

ALURNUS, Olivier.

TENEBRIO, Sulzer.

Antennæ simple, inserted before the eyes. Palpi filiform, the last joint somewhat ovate, the apex acute. Eyes lunate. Hinder feet, especially the thighs, very thick. Body elongate.

Sp. 1. Femorata.

Sagra femorata, Herbst, Fabr. Latr.

Alurnus femoratus, Olivier.

Inhabits Africa.

FAMILY II. *Criocerida*.

Mandibles bifid or notched at their extremities.

GENUS CCCV. *DONACIA*, Fabr. Payk. Hoppe, Oliv. Latr.

LEPTURA, Linn. Marsh.

Antennæ with elongate cylindric joints, those of the base obconic. Eyes not notched. Abdomen elongate-triangular. Hinder thighs thick.

* Hinder thighs dentated.

Sp. 1. Micans.

Donacia micans, Hoppe.

Leptura micans, Marsh.

Inhabits Europe.

** Hinder thighs simple.

Sp. 2. Simplex.

Leptura simplex, Marsham.

Inhabits Europe.

GENUS CCCVI. *CRIO CERIS*, Geoff. Oliv. Lamarck.

CHRYSOMELA, Linn. De Geer.

LEMA, Fabricius.

AUCHENIA, Marsham.

Antennæ moniliform, with the exception of the basal joints, which are globose. Eyes notched. Neck distinct. Abdomen quadrate.

Sp. 1. Merdigera.

Crioceris merdigera, Latreille.

Lema merdigera, Fabricius.

Auchenia merdigera, Marsham.

Chrysomela merdigera, Linn.

Inhabits the white lily.

TRIBE IX. *Chrysomelides*.

Lip not cordiform. Maxillæ with their external division resembling a biarticulate palpus. Body more or less ovoid or oval. Thorax transverse, or not longer than broad.

FAMILY I. *Cassidida*.

Palpi very small. Antennæ inserted near each other between the eyes, at a distance from the mouth.

DIVISION I.

Body elongate. Thorax almost quadrate.

GENUS CCCVII. *ALURNUS*, Fabricius, Latreille.

HISPA. Olivier.
Body not spinose. Mandibles terminated by a strong hook.

Sp. 1. Grossus.

Aturinus grossus. Fabricius, Latreille.

GENUS CCCVIII. *HISPA*. Linn. Fabricius, Olivier.

CRIO CERIS. Olivier.

Body spinose. Mandibles with their points bidentate.

Sp. 1. Atra.

Hispa atra. Linn. Fabricius, Olivier, Panzer.

Inhabits Europe. This species has been introduced into the British Fauna on dubious authority.

DIVISION II.

Thorax semicircular. Body shield-shaped.

GENUS CCCIX. *HIMATIDIUM*. Illiger.

IMATIDIUM. Fabricius, Latreille.

Antennæ entirely exerted, cylindric. Body nearly quadrate.

Sp. 1. Leayanum.

Imatidium leayanum. Latreille.

GENUS CCCX. *CASSIDA*. Linn. Fabr. Latr. &c.

Antennæ thicker towards their extremities, their base concealed by the thorax. Body nearly orbiculate.

Sp. 1. Equestris.

Cassida equestris. Fabr. Payk. Panz. Latr.

Cassida viridis. Marsham, Illiger.

Inhabits *Mentha sylvestris*.

FAMILY II. *Galerucida*.

Maxillary palpi very apparent. Antennæ inserted very near to each other, between the eyes, towards the middle of the face.

DIVISION I.

Feet not formed for leaping.

GENUS CCCXI. *ADORIUM*. Fabricius, Latreille.

OIDES. Weber.

Palpi with the last joint but one dilated, the last short, nearly cylindric, truncate. Antennæ almost orbicular. Elytra with their exterior margin arcuated.

Sp. 1. Bifunctatum.

Adorium bifunctatum. Fabricius, Latreille.

Oides bifunctata. Weber.

Inhabits Eastern India.

GENUS CCCXII. *GALERUCA*. Geoff. Latr. Fabr. Oliv.

CHRYSOMELA. Linn. De Geer, Marsham.

Palpi with the two last joints very slightly different in size, the last conic. Antennæ shorter than the body, the joints obconic, the second joint half the length of the third.

Sp. 1. Tanacetii.

Chrysomela tanacetii. Marsham.

Galeruca tanacetii. Latreille, Fabricius.

Inhabits Europe.

GENUS CCCXIII. *ADIMONIA*. Schrank.

GALERUCA. Latreille, Fabricius.

CRIO CERIS. Fabricius.

Palpi with the two last joints not very different in size, the last joint conic. Antennæ shorter than the body, the joint obconic, with the second and third joints shorter than the fourth joint.

Sp. 1. Nigricornis.

Crioceris nigricornis. Fabricius.

Galeruca nigricornis. Latreille.

Inhabits Europe.

Sp. 2. Alni.

Chrysomela alni. Marsham.

Galeruca alni. Latreille, Fabricius.

Inhabits Europe.

GENUS CCCXIV. *LUPERUS*. Geoff. Oliv. Latr.

CRIO CERIS. Fabricius.

Palpi with the two last joints nearly equal in size, the last conic. Antennæ as long as the body, the joint cylindric, elongate.

Sp. 1. Flavipes.

Luperus flavipes. Latreille.

Crioceris flavipes. Fabricius.

Inhabits Europe.

Sp. 2. Rufipes.

Crioceris rufipes. Fabricius.

Inhabits Europe.

DIVISION II.

Hinder feet formed for leaping, the thighs being incrossed.

GENUS CCCXV. *HALTICA*.

HALTICA. Geoffroy, Olivier, Panzer, Latreille.

CHRYSOMELA. Linn. De Geer, Marsham.

CRIO CERIS. Fabricius.

LEMA. Fabricius.

GALERUCA. Fabricius.

Antennæ with the second joint generally a little shorter than the third.

* Body ovate.

Sp. 1. Oleracea.

Altica oleracea. Latreille, Panzer.

Gallernea oleracea. Fabricius.

Inhabits Europe.

** Body nearly orbiculate.

Sp. 2. Testacea.

Galeruca testacea. Fabricius.

Altica testacea. Latreille.

Inhabits Europe.

FAMILY III. *Chrysomelida*.

Maxillary palpi very apparent. Antennæ inserted before the eyes, gradually thickening towards their points. Head nutant, forming an obtuse angle with the thorax.

DIVISION I.

Mandibles short, obtuse, truncated, or terminated by a very short point. Antennæ with the four last joints globose or turbinate.

Subdivision 1.

Antennæ with the four last joints turbinate. Body hemispheric or oval. Thorax transverse.

GENUS CCCXVI. *PAROPSIS*. Olivier, Latreille.

NOTOCLEA. Marsham.

Maxillary palpi terminated by a securiform joint. Body hemispherical.

Sp. 1. Australasia.

Paropsis Australasia. Olivier.

Inhabits New Holland.

GENUS CCCXVII. *DORYPHORA*. Oliv. Latr. Illiger.

CHRYSOMELA. Fabricius.

Maxillary palpi terminated by a transverse joint shorter than the one before it. Sternum with its middle produced into a horn.

Sp. 1. Punctatissima.

Chrysomela punctatissima. Fabricius.

Doryphora punctatissima. Illiger, Latreille.

GENUS CCCXVIII. *CHRYSOMELE*. Latr. Fabr. Oliv.

Palpi terminated by two joints of nearly an equal length, the last almost ovoid truncate, or nearly cylindrical. Sternum not produced.

- * Thorax with the sides incrassated, as if margined: Body ovate-quadrate.

Sp. 1. Banksii.

Chrysomela Banksii. Fabricius, Latreille, Marsham. Inhabits Europe.

- ** Thorax with the sides not incrassated. Body ovate-quadrate.

Sp. 2. Litura.

Chrysomela litura. Fabricius, Latreille, Marsham. Inhabits the broom.

- ** Body elongate-ovate-quadrate.

Sp. 3. Marginella.

Chrysomela marginella. Fabricius, Latreille. Inhabits Europe.

Subdivision 2.

Antennæ with the four last joints semi-globose almost forming a club. Body elongate-quadrate. Thorax as long as broad.

GENUS CCCXIX. *HELODES.* Paykull, Fabricius, Olivier.

PRASOCURIS. Latreille.

CHRYSOMELA. Marsham, Hellwig.

Palpi short, thicker at their middle, the last joint short-obconic.

Sp. 1. Phellandrii.

Helodes phellandrii. Paykull, Fabricius.

Prosocuris phellandrii. Latreille.

Inhabits Europe.

Sp. 2. Violacea.

Helodes violacea. Fabricius.

Chrysomela beccabungæ. Hellwig, Marsham.

Inhabits Europe.

DIVISION II.

Mandibles abruptly arcuated, terminated by a very strong point. Antennæ with the four last joints elongate, compressed, reversed-conic, the last long almost elliptic, and terminated by a point resembling an additional joint.

GENUS CCCXX. *COLASPIS.* Fabricius, Latreille.

Maxillary palpi terminated by a large joint, nearly ovoid.

Sp. 1. Surinamensis.

Colaspis Surinamensis. Latreille.

Inhabits Surinam.

FAMILY IV. *Cryptocephalida.*

Maxillary palpi very apparent. Antennæ inserted before the eyes. Head vertical.

DIVISION I.

Palpi with the last joint thick, ovoid. Body nearly ovoid.

GENUS CCCXXI. *EUMOLFUS.* Kugellan, Weber, Fabricius, Latreille.

CRYPTOCEPHALUS. Olivier, Geoffroy.

Thorax with a very convex back, which is gibbose.

Sp. 1. Vitis.

Cryptocephalus vitis. Fabricius.

Eumolpus vitis. Fabricius, Latreille.

Inhabits Europe, on the vine.

DIVISION II.

Palpi with the last joint conic-cylindric. Body short-cylindric.

GENUS CCCXXII. *CRYPTOCEPHALUS.* Geoffroy, Fabricius, Olivier, Latreille, Lamarck, Marsham.

CHRYSOMELA. Linn. De Geer.

Antennæ simple, filiform, about the length of the body.

Sp. 1. Sericeus.

Chrysomela sericea. Linn.

Cryptocephalus sericeus. Fabricius, Olivier, Marsh.

Inhabits the flowers of the Dandelion.

GENUS CCCXXIII. *CLYTHRA.* Laicharting, Fabricius, Olivier, Latreille.

CHRYSOMELA. Linn.

MELOLONTIA. Geoffroy.

CRYPTOCEPHALUS. Marsham.

Antennæ short, serrated, exserted. Palpi alike.

Sp. 1. Quadrihuncata.

Clythra quadrihuncata. Fabricius, Latreille.

Cryptocephalus quadrihuncatus. Marsham.

Chrysomela quadrihuncata. Linn.

Inhabits Europe.

GENUS CCCXXIV. *CLAMYS.* Knoch, Latreille.

CLYTHRA. Fabricius, Olivier.

Labial palpi furcate. Feet contractile. Antennæ short, serrated, lodged in a rim of the thorax.

Sp. 1. Monstrosa.

Clythra monstrosa. Fabricius.

Chlamys monstrosa. Latreille.

Subdivision 1.

Antennæ a perfoliated club. Maxillæ with their internal side unguiculated.

TRIBE X. *EROTYLIDES.*

FAMILY I. *Erotylida.*

Palpi all terminated by large, semilunar, or securiform joints.

DIVISION I.

Antennæ with their intermediate joints elongate, nearly cylindric or obconic. Body much elevated. Thorax flat. Tibiæ slender, nearly cylindric.

GENUS CCCXXV. *EROTYLUS.* Fabr. Oliv. Latr.

Body ovate or oval.

Sp. 1. Gibbosus.

Erotylus gibbosus. Fabricius, Latreille.

GENUS CCCXXVI. *ÆGITHUS.* Fabricius.

EROTYLUS. Latreille.

Body hemispheric.

DIVISION II.

Antennæ moniliform below, terminated by an ovoid club. Thorax elevated at the middle. Tibiæ elongate-triangular.

GENUS CCCXXVII. *TRITOMA.* Fabr. Oliv. Latr.

Body short-ovate, the back elevated in the middle.

Thorax with the middle of the hinder margin dilated into an angle.

Sp. 1. Bihustulatum.

Tritoma bihustulatum. Fabricius, Paykull, Latreille.

Inhabits Boleti.

GENUS CCCXXVIII. *TRIPLAX.* Payk. Fabr. Oliv.

SILPHA. Linn. Marsham.

Body oval.

Sp. 1. Russica.

Silpha russica. Linn. Marsham.

Triplax russica. Paykull, Fabricius.

Tritoma russica. Latreille.

Inhabits dead trees and fungi.

FAMILY II. *Phalacriurida*.

Maxillary palpi filiform, or thicker towards their extremities.

DIVISION I.

Tarsi with the penultimate joint, bilobate. Body not contractile into a ball.

Subdivision 1.

Body linear.

GENUS CCCXXIX. *LANGURIA*. Latreille.

TROGOSITA. Fabricius.

Antennæ with a five-jointed club.

Sp. 1. Bicolor.

Languria bicolor. Latreille.

Trogosita bicolor. Fabricius.

Inhabits North America.

Subdivision 2.

Body hemispheric.

GENUS CCCXXX. *PHALACRUS*, Latreille, Paykull.

SPHERIDIUM. Fabricius.

DERMESTES. Scopoli, Marsham.

ANISOTOMA. Illiger, Fabricius.

VOLVOXIS. Kugellan.

Antennæ with a three-jointed club.

Sp. 1. Bicolor.

Phalacrus bicolor. Paykull, Latreille.

Dermestes calthæ. Scopoli.

Anisotoma bicolor. Illiger, Fabricius.

Inhabits flowers in Europe.

DIVISION II.*

Tarsi with the joints entire. Body nearly globose, contractable into a ball.

GENUS CCCXXXI. *AGATHIDIUM*. Illiger, Latr.

ANISOTOMA. Fabricius.

SPHERIDIUM. Olivier.

VOLVOXIS. Kugellan.

Antennæ with a three-jointed club.

Sp. 1. Nigripenne.

Agathidium nigripenne. Illiger, Latreille.

Sphæridium ruficollæ. Olivier.

Anisotoma nigripenne. Fabricius.

Inhabits Europe.

SECTION IV. TRIMERA.

Tarsi all three-jointed.

TRIBE I. COCCINELLIDES.

Antennæ shorter than the thorax. Maxillary palpi terminated by a very large securiform joint. Body hemispheric. Thorax transverse, the hinder margin arcuated.

GENUS CCCXXXII. *SCYMNUS*. Herbst, Kugellan.

COCCINELLA. Latr. Fabr.

Thorax scarcely narrower than the elytra, the lateral and external margins meeting together. Body ovate, pubescent.

Sp. 1. Biverrucata.

Coccinella biverrucata. Fabr.

Inhabits Europe.

GENUS CCCXXXIII. *COCCINELLA*.† Linn. Fabr. Latr. &c.

Thorax (even behind) narrower than the elytra. Body hemispheric, approaching to ovate.

Sp. 1. Septempunctata, (common *Lady-cow*).

Coccinella septempunctata. Linn. Fabr. &c.

Inhabits Europe.

GENUS CCCXXXIV. *CHILOCORUS*. Leach's MSS.

COCCINELLA. Fabr. Latr. Marsh.

Thorax lunate, without hinder angles. Body entirely margined.

Sp. 1. Cacti.

Coccinella cacti. Fabr. Latr.

Chilocorus cacti. Leach's MSS.

Inhabits Europe.

TRIBE II. ENDOMYCHIDES.

Antennæ longer than the Thorax. Maxillary palpi not terminated by a large joint. Body more or less ovoid. Thorax almost quadrate.

GENUS CCCXXXV. *EUMORPHUS*. Weber, Latr. Fabr.

Antennæ with the third joint very long. Maxillary palpi filiform. Labial palpi with the two last joints an obtrigonal head.

Sp. 1. Kirbyanus.

Eumorphus Kirbyanus. Latr. Gen. Crust. et Ins. iii. 72.

Eumorphus immarginatus. Latr. Gen. Crust. et Ins. Tab. xi. fig. 12.

Inhabits eastern India.

GENUS CCCXXXVI. *ENDOMYCHUS*. Payk. Fabr.

CHRYSOMELA. Linn. De Geer.

TENEBRIO. Marsh.

Antennæ with the greater portion of their joints very short, nearly cylindric; the ninth longer than the one before it; the last with the apex truncate or obtuse. Palpi with their extremities thicker. Thighs not abruptly clavate. Body ovate. Thorax short, with the base gradually enlarging from the apex, not narrowed behind. Mandibles with their points distinctly bifid or bidentate.

Sp. 1. Coccineus.

Chrysomela coccinea. Linn.

Endomychus coccineus. Payk. Latr. Fabr.

Tenebrio coccineus. Marsh.

Inhabits Europe.

GENUS CCCXXXVII. *LYCOPERDINA*. Latr.

ENDOMYCHUS. Fabr. Payk. Oliv.

TENEBRIO. Marsh.

Antennæ moniliform, gradually thickening towards their extremities, the ninth joint scarcely longer than the one before it. Maxillary palpi filiform. Labial palpi with the last joint large, almost ovoid. Thighs abruptly clavate. Body elongate-ovate. Thorax with the anterior angles a little dilated, narrowed behind. Mandibles with their points very acute, undivided.

Sp. 1. Bovista.

Endomychus bovista. Payk. Fabr.

Tenebrio bovista. Marsh.

Lycoperdina immaculata. Latr.

Inhabits Europe.

SECT. V. DIMERA.

Tarsi with two joints.

TRIBE I. PSELAPHIDES.

Elytra short. Antennæ eleven-jointed. Mandibles in all.

* The genus *Clypeaster* of Andersch has nine joints in its Antennæ, and a clypeiform thorax shielding the head.

† The British species are to form the subject of a paper for the Linnean Society, by Mr Stephens, an acute entomologist.

GENUS CCCXXXVIII. *PSELAPHUS*. Herbst, Paykull, Illiger, Latreille, Panzer.

ANTHICUS. Fabr.

Antennæ with the two or three last joints larger than the rest, the extreme joint ovoid. Labial palpi much shorter than the maxillary ones, the last joint very long, cylindric. Maxillary palpi much porrected. Tarsi with one nail.

Sp. 1. Impressus.

Pselaphus impressus. Panzer, Latr.

Inhabits Europe. It sometimes occurs in Battersea fields amongst the roots of grass.

GENUS CCCXXXIX. *CHENNIUM*. Latr.

Antennæ with the ten first joints nearly equal, lenticular; the last largest, semiglobose. Palpi very small, not exerted. Tarsi with two nails.

Sp. 1. Bituberculatum.

Chennium bituberculatum. Latr.

Inhabits France.

TRIBE II. CLAVIGERIDES.

Elytra short. Antennæ six-jointed. Mandibles none.

GENUS CCCXL. *CLAVIGER*. Preysler, Illiger, Latreille.

Antennæ with the middle joints semiglobose, the last larger, short-cylindric. Palpi very small. Tarsi with one nail.

ORDER IV. STREPSIPTERA.

ORDER STREPSIPTERA. Kirby.

ORDER HYMENOPTERA. Rossi.

We are indebted to Rossi for the discovery of the type of this highly interesting order of insects. The insect discovered by this author was denominated *Xenops Vesparum*, and was by him, without hesitation or comment, assigned a place among the hymenopterous insects, next to *Ichneumon*. The Rev. William Kirby, who first called the attention of entomologists to a British insect named *Stylops Melittæ*, was the first author who observed that it possessed characters different from those of any of the established orders of insects; and this opinion has been since confirmed by Mons. Latreille, who, in the end of his *Genera Crustaceorum et Insectorum*, thus expresses himself. "*Insectum frorsus singulare (Stylops melittæ, Dom. Kirby), a Dom. Brebisson accepit. Systemata Entomologica perturbare videtur, cum ex omnibus ordinibus repellatur. Xenops Vesparum Rossi animal præcedenti affine et animum pariter excrucians. Tempus ducamus et dies alteri lucem afferent.*" The time he predicted has arrived; and it has been left to the lucid genius of Kirby to substantiate and to characterise this order, which he has done in a paper published in the 11th volume of the *Transactions of the Linnean Society*, from which we shall extract a brief history of the order, genera, and species.

"Characters of the Order.

"Body oblong or linear-oblong, somewhat cylindric, covered with a horny integument.

"Head sessile, broader than the trunk, transverse and large. Mouth with no visible labrum, labium, or maxillæ. Mandibles two, corneous, elongate, linear, very narrow; the apex acute, forficat, inserted under the head at the base of the palpi, which are two, biarticulate and

very distant. Antennæ inserted in an excavation in the front; base with a two or three-jointed common peduncle, composed of very short joints, terminated by two elongate branches.

"Trunk oblong; wings with nerveures diverging like rays, folding longitudinally, somewhat membranaceous; elytra as if affixed to the base or coxæ of the anterior feet, linear, or somewhat spoon-shaped, at first diverging from the body, and then curving inwards again, lastly again recurring, and not in the slightest degree covering the wings. Legs equal or nearly so in length, compressed; the four anterior ones approximate, the hinder pair remote; all furnished with trochanters, of which the two hinder ones are shortest. Tarsi four-jointed, the first joint largest, the last unarmed."

GENUS CCCXLI. *STYLOPS*. Kirby.

Antennæ bipartite; the branches compressed; the superior branch articulated. Palpi first obconic, large, compressed; second, semi-ovate, acute, hollow beneath. Eyes pedunculated, composed of numerous hexagons, the septa but little elevated. Abdomen fleshy, retractile within a process of the trunk. Tarsi with the last joint notched. Mandibles thicker at their extremities.

LARVA unknown; it resides within the bodies of the *Andrenides*.

PUPA with a fleshy body, bearing a coriaceous exerted head. It is found between the joints of the abdomen of certain *Andrenides*.

Sp. 1. Melittæ.

GENUS CCCXLII. *XENOPS*. Rossi, Kirby.

Antennæ bipartite; the branches not jointed, semi-rounded. Palpi, first joint compressed, flexuous; second ovate, acute. Eyes pedunculated, composed of fewer hexagons than those of *Stylops*; the septa thicker, and more elevated. Abdomen exerted, horny; anus fleshy. Tarsi with last joint entire. Mandibles thicker towards their middle; apex acute.

LARVA parasitical in the bodies of the *Vesphides*; body lancinate, plicate, fleshy; head compressed.

PUPA parasitical under the joints of the abdomen of the *Vesphides*. Body linear, fleshy; head horny and exerted; opercula of the eyes fenestrated; the window hexagonal.

Sp. 1. Peckii. Sooty-black-brown; antennæ with the branches more dilute, dotted with white; anus pale; feet lurid; tarsi brown. Length 1½ line.

Xenops peckii. Kirby, *Lin. Trans.* xi. tab. 8. and 9.

The larva and pupa inhabit the body of *Polistes fuscatus* of Fabricius, which is found in America.

Body sooty-black-brown, covered with a velvet-down, which can only be seen by means of a very strong glass. Head between the antennæ longitudinally elevated. Palpi with first joint longest. Antennæ longer than the head; branches pale brown, almost diaphanous, sprinkled with minute dots of white. Thorax behind, in the middle, obtusely angulate. Scutellum longitudinally and broadly grooved or channelled. Postlumbium pale. Wings cinereous-whitish, the margin thicker, the nerves black. Legs cinereous, or rather lurid. Tarsi blackish. Abdomen darker than the rest of the body. Anus pale red.

The branches of the antennæ have their inner surface plain, and are probably, under certain circumstances, applied to each other, so as to form a single columnar branch. The white dots, Mr Kirby suspects, may emit

* We have considered it as unnecessary to give the detailed character; we must therefore refer to Mr Kirby's paper, *Lin. Trans.* vol. xi. p. 109-112.

a light (whilst the animal is living); but he gives this idea as a mere conjecture.

The discovery of this curious insect is due to the assiduous researches of William Dandridge Peck, Esq. professor of natural history in Harvard University, Cambridge, New England, who sent specimens, with drawings made from the recent animal, to the celebrated author of the *Monographia Apum Angliæ*, with the following statement, which we have extracted from his letter to Mr Kirby.*

"Your having met with the remains of *Strepsiptera* in foreign *Vesphides*, made me determine to look for them in those of this country; and I have the pleasure to find one in a species of *Polistes* that is here very abundant. The abdomen of this *Polistes* is so distorted by them, that I have no difficulty in knowing them when on the wing. Taking them with the gauze forceps, bringing them into a close room, and permitting them to fly to the windows, I caught them again with a wine-glass and a card, fed them with sugar, and thus preserved them till their parasites were disclosed. I had not the pleasure to see them emerge, but I found them soon after. I obtained four in this way, and brought several nests of the *Polistes* into the house, taking them in the night, when all the inhabitants were at home, in hopes of obtaining more; but I got no living ones.

"All that I know of this animal, was picked up in a few days that I passed at my little place at Newberry. In feeding, the head of the larva is near the base of the abdomen of the wasp, as I found by dissection. When the feeding state is passed, it is easy to conceive that it turns, and with its flattened head separates the membrane which connects the abdominal scuta, and protrudes itself a little way, accurately closing the aperture, which is just large enough to admit it. All this time the wasp is active, and associates with its companions. When just protruded, the head of the larva is of a pale brownish colour; by degrees it assumes a rounder form, and becomes almost black.

"The pupa state ensues; but I suspect that only the part exposed to the air, and that immediately under the pressure of the abdominal ring, becomes hard.

"The four I took were all alike, and I concluded that they were males, from the circumstance of their vibrating their wings, which several lepidopterous insects of that sex do likewise. Be assured, that this indicates eager desire. So my insect, which I confined under a watch crystal, coursed round its prison, with surprising trepidation, as long as it lived, which was but a few hours."

Sp. 2. Rossii. Deep-black; branches of the antennæ compressed; tarsi brown.

Xenops vespharum. Rossii.

Xenops rossii. Kirby.

Inhabits *Polistes Gallica*, in Italy.

Body black, smoky. Head small. Palpi with the first joint short, rounded; the second elongate, compressed. Antennæ scarcely longer than the head, though compressed, as if ensiform. Tarsi (four) brown, white beneath.

"Rossi, in his description, which, extraordinary as he deemed his insect, appears to have been drawn up from a very cursory and inaccurate survey of it, mistakes the mandibles for setæ, and seems not to have traced them to their point of insertion under the head, since he merely

says '*Labium breve, medio setigerum.*' He takes no notice of the eyes being placed in a footstalk or pillar. The elytra he regards as an appendage of the thorax, something similar to the halteres or poisers of the *Diptera.*"

Mr Kirby has never seen *Xenops Rossii*, but has merely copied Rossi's account. Upon comparing the descriptions of the two species, we find that they not only differ in colour, but also in the length of the first joint of the palpi compared with the second, and in the form of the branches of the antennæ. Rossi makes no mention of the minute white dots which render those of *Xenops Peckii* so very remarkable; we therefore think, that Mr Kirby is fully justified in considering them as distinct. Should the proportion of the joints of the palpi be found in nature to be the same as expressed in Rossi's figure, these animals cannot be referred even to the same genus, but must constitute a new one.

ORDER V. DERMAPTERA.

ORDER DERMAPTERA. Kirby.

ORDER COLEOPTERA. Linn. Marsh.

ORDER ORTHOPTERA. Latr. Lam.

Characters of the Order.

Elytra somewhat crustaceous and abbreviated, of a square form; the suture straight. Wings membranaceous, externally coriaceous, large, folded transversely and longitudinally. Anus armed with a forceps, which is horny and moveable. Body linear depressed. Antennæ inserted before the eyes, composed of from twelve to thirty joints; the first articulation largest, the second very small, the others short, obconic, or nearly globose. Mandibles with their points bidentate. Palpi filiform, terminated with a very obscure tuberculiform little body or spine. Tarsi three-jointed, villöse beneath. Eyes triangular-orbicular, and but little prominent.

Observation. The genera are founded on the number of joints in the antennæ.

GENUS CCCXLIII. FORFICULA. Linn. Fabr. Latr. Lam. Cuv.

Antennæ composed of fourteen joints.

Sp. 1. Auricularia. Forceps at the base internally denticulated, and a little beneath with a tooth on each side. Elytra yellowish brown, with the disc darker.

Forficula auricularia of authors.

Inhabits Europe. Mr Marsham has considered the sexes of this insect as two species, under the names *auricularia* and *neglecta*.

GENUS CCCXLIV. LABIA. Leach.

FORFICULA. Fabr. Latr.

Antennæ twelve-jointed.

Sp. 1. Minor. Forceps denticulated within.

Forficula minor. Fabr. Panz.

Inhabits Europe. The forceps of the male are somewhat larger than that of the female, which character Mr Marsham has considered as specific.

GENUS CCCXLV. LABIDURA. Leach.

FORFICULA. Fabr.

Antennæ with about 30 joints.

Sp. 1. Gigantea. Entirely testaceous-yellow.

Forficula gigantea. Fabr.

Inhabits Europe. It was discovered to inhabit Britain, by the Rev. William Bingley, who observed them on the sea-coast, near Christchurch, Hampshire, where they occurred in great abundance.

* We shall transcribe this part of Mr Kirby's paper, with the exception of the terms; which we shall change for those adopted in this article.

ORDER VI. ORTHOPTERA.

Order ORTHOPTERA. Oliv. Lam. Latr.

Class ULONATA. Fabr.

Order HEMIPTERA. Linn.

Characters of the Order.

Elytra coriaceous, the internal margin of one overlapping the same margin of the other. Wings membranaceous, the anterior margin coriaceous, longitudinally folded. Palpi short. Body elongate, narrow. Tarsi with four or three, very rarely with five joints.

TRIBE I. MANTIDES.

Elytra and wings horizontal; the latter simply longitudinally folded. Tarsi five-jointed. Body somewhat cylindric or linear. Feet not formed for leaping.

FAMILY I. *Phasmida*.

Anterior feet not raptorious. Thorax composed of two segments.

GENUS CCCXLVI. *PHASMA*. Licht. Fabr. Latr. Leach.

MANTIS. Linn. De Geer, Oliv.

SPECTRUM. Stoll. Lam.

Body cylindric, filiform, winged. Thorax cylindric, second segment much longer than the first. Feet simple.

Sp. 1. Violascens. Green, with the external edge of the elytra yellowish; the wings, with the exception of the coriaceous margin, violet; the four hinder thighs spiny beneath.

Phasma violascens. Leach, *Zoolog. Miscel.* vol. i. p. 26. tab. 9.

Inhabits New Holland.

GENUS CCCXLVII. *SPECTRUM*. Stoll. Lam. Leach.

PHASMA. Fabricius, Latreille.

Body cylindric, filiform, without wings. Feet simple.

Sp. 1. Rossium. Body green, or ash-coloured brown, somewhat obsoletely granulated, with a dorsal carinula; feet filiform, angulate-striate; thighs towards their joints beneath with one tooth.

Phasma rossia. Fabricius, Latreille.

Inhabits Italy and the southern parts of France.

GENUS CCCXLVIII. *PHYLLIUM*. Illiger, Latreille.

MANTIS. Linn. Fabr. Oliv.

PHASMA. Lich. Lam.

SPECTRUM. Stoll.

Body oblong, very much depressed, with elytra and wings. Abdomen oval or elliptic membranaceous.

Sp. 1. Siccifolium. Bright green.

Mantis siccifolia. Lin. Fabr. Donovan, *Nat. Hist. of the Insects of India*, No. 8. fig. 3.

Inhabits the Molucca Isles.

FAMILY II. *Mantida*.

Anterior feet raptorious. Thorax composed of one segment.

GENUS CCCXLIX. *EMPUSA*. Illig. Latr.

MANTIS. Linn. Fabr. Oliv. Stoll. Lam. Lich.

Antennæ of the male pectinated. Head produced into a horn. Four hinder feet having their knees adorned with leaf-processes.

Sp. 1. Mendica.

Mantis mendica. Fabr. Latr. Stoll. *Mant.* tab. 12. fig. 47.

GENUS CCEL. *MANTIS*. Linn. Latr. Fabr. Oliv. Lam. Lich. Latr. Stoll.

Antennæ in both sexes simple. Head without an horn. Legs all simple.

Sp. 1. Religiosa. Pale green, somewhat linear; thorax half the length of the elytra, three times longer than broad. Back, with the exception of the anterior part, longitudinally carinated. Lateral margins yellowish, denticulated. Elytra linear, glaucous transparent green, the exterior margin yellowish. Wings of the same colour with the elytra, but paler and more transparent, the tips brownish. Anterior legs with denticulated coxæ. Anterior thighs yellowish within, denticulated at the base beneath; the spines with black tips.

Mantis religiosa. Linn. Latr.

Le Mante. Geoffroy.

Mantis oratoria var. β . Fabricius.

Gryllus religiosus. Scopoli.

Inhabits the commons and wastes of southern Europe.

TRIBE II. ACETIDES.

Elytra horizontal. Wings longitudinally folded, often produced beyond the elytra. Tarsi three-jointed. Hinder feet formed for jumping.

FAMILY I. *Gryllotalpida*.

Antennæ not longer than the thorax. Anterior feet compressed, formed for digging. Oviduct not exerted.

GENUS CCCLI. *GRYLLOTALPA*. Ray, Latreille.

GRYLLUS (Acheta). Linn.

ACHETA. Fabr.

Antennæ setaceous, composed of a vast number of joints, (beyond sixty.) Anterior tibiae and tarsi formed for digging; two first joints of the tarsi very large, dentiform. Hinder feet little formed for jumping.

Sp. 1. Vulgaris. Above fuscous, ferruginous-yellowish beneath; anterior tibiae quadridentate; wings twice the length of the elytra.

Gryllus gryllotalpa. Linn.

Acheta gryllotalpa. Fabricius.

Gryllotalpa vulgaris. Latreille.

Inhabits Europe. The male sings in the evening by rubbing the elytra together.

Sp. 2. Didactyla. Anterior tibiae bidentate.

Inhabits Cayenne.

This species has been confounded with *G. Vulgaris* in several cabinets.

GENUS CCCLII. *TRIDACTYLUS*. Olivier, Latr.

ACHETA. Coquebert.

Antennæ moniliform, (very short), ten-jointed. Anterior tibiae with their joints only spinous. Hinder feet well calculated for leaping.

Sp. 1. Paradoxus. Pale luteous; thorax pale fuscous, the sides pale luteous; elytra half the length of the abdomen, brown, hyaline externally with white tips; wings a little longer than the abdomen, with their base white, then pale brown, transversely striated.

Inhabits Guinea. It is the *Acheta digitata* of Coquebert, tab. 21. fig. 3.

FAMILY II. *Achetida*.

Feet not formed for digging. Oviduct exerted. Antennæ longer than the thorax.

GENUS CCCLIII. *ACHETA*. Fabr.

GRYLLUS. Linn. Geoff. Latr. Oliv. Lam.

Sp. 1. Campestris. Body three times longer than broad, black, shining.

Gryllus campestris. Linn. Latr.

Acheta campestris. Fabricius.

Inhabits the temperate parts of Europe. Is not very common in Britain.

TRIBE III. LOCUSTIDÆ.

Elytra and wings oblique. Hinder feet formed for jumping. Tarsi four-jointed. Antennæ setaceous.

GENUS CCCLIV. *LOCUSTA*.^{*} Geoff. De Geer, Fabr. Oliv. Lam. Latr.

Gryllus (tettigonia). Linn.

Hinder feet twice the length of the body. Oviduct exerted.

Sp. 1. Viridissima. Green; antennæ, vertex, dorsum of the thorax, and suture of the elytra, fuscous-ferrugineous.

Locusta viridissima. Fabricius, Latreille.

Gryllus viridissimus. Linn.

Inhabits Europe. In the autumn, the perfect insect may be found in great plenty near London.

TRIBE IV. GRYLLIDÆ.

Elytra and wings oblique. Hinder feet formed for jumping. Tarsi with three joints. Antennæ filiform or ensiform. Oviduct not exerted.

FAMILY I. *Gryllida*.

Wings not covered by the scutellum.

GENUS CCCLV. *PNEUMORA*. Thunb. Latr.

Gryllus (Locusta). Linn.

Acrydium. De Geer, Olivier.

Antennæ filiform, composed of from 16 to 20 joints. Abdomen bladder like, as if inflated. Feet all shorter than the body.

The species of this curious genus are not well defined; we shall therefore be silent respecting them, lest we add to their confusion.

GENUS CCCLVI. *TRUXALIS*. Fabr. Oliv. Lambert, Latreille.

Gryllus, (Acrida). Linn.

Acrydium. De Geer.

Antennæ ensiform. Body narrow-elongate. Thorax behind dilated into an angle. Hinder legs longer than the body.

The species are numerous, but are little known, one species having been confounded with another.

Sp. 1. Nasatus. Fabricius.

GENUS CCCLVII. *Gryllus*. Fabricius, Panzer.

Gryllus, (Locusta). Linn.

Antennæ filiform, or terminated in a club. Hinder legs not, or scarcely, longer than the body.

This genus comprehends a vast number of species.

Sp. 1. Migratorius. Thorax somewhat carinated; mandibles blue.

This species has been taken in Britain occasionally; but in the year 1748 it appeared in several irregular flights, in several parts of Europe, (as we have mentioned in our list of entomological writers,) and visited England, but they perished in a very short time, before they did much harm.

Of all the insects which are capable of adding to the calamities of the human race, locusts seem to possess the most formidable powers of destruction. Legions of these voracious animals, of various species, are produced in Africa, where the devastations they commit are almost incredible. The air is darkened by their numbers; they carry desolation with them wherever they pass; and, in the short space of a few hours, are said to change the most fertile provinces into a barren desert.

* *Locusta verrucivora* of Fabricius, *Gryllus verrucivorus* of Linnaeus, has lately been taken in plenty near Rochester, by J. Herslow, Esq. of St John's College, Cambridge.

Some of the species serve as food, and are eaten fresh as well as salted. In the latter state they are constantly exposed to sale in the Levant; but the quantity of nutritious matter is said to be very small.

FAMILY II. *Acrydida*.

Wings covered by the scutellum.

GENUS CCCLVIII. *ACRYDRUM*. Fabricius, Geoffroy, De Geer, Olivier.

Acheta. Lamarck.

Gryllus, (Bulla). Linn.

Tetrix. Latreille.

Sp. 1. Subulata. Obscure testaceous brown, granulose; thorax carinated, margined.

Gryllus subulatus. Linn.

Acrydium subulatum. Fabricius, Olivier.

Tetrix subulata. Latreille.

Inhabits Europe. It is found in hot banks, and is subject to some variation in colour.

The species of *Acrydium* are but little understood. We seem to possess three very distinct indigenous species, all varying in size, sculpture, and colour.

ORDER VII. DICTYOPTERA.

Order HEMIPTERA. Linn.

Class ULONATA. Fabricius.

Order ORTHOPTERA. Latreille.

Order DICTYOPTERA: Leach.

Characters of the Order.

Elytra coriaceous, nervous, decussating each other. Wings membranaceous, with a few longitudinal folds. Maxillary palpi elongate. Body depressed, oval, or somewhat orbicular. Tarsi with five joints.

GENUS CCCLIX. *BLATTA*. Linn. Fabricius, &c.

Sp. 1. Orientalis. Elongate-ovate, ferruginous brown. Thorax semicircular, truncate before.

Inhabits North America. Is common in Europe in houses, but is not indigenous to that quarter of the globe.

The genus *Blatta* may be defined, (as it now stands,) to be a general reservoir for all insects, agreeing with the character of the order. Much might be done towards elucidating this hitherto neglected part of entomology; and we trust that some entomographer, who has time, will devote some share of his attention to the examination of the genera and species.

ORDER VIII. HEMIPTERA.

Order HEMIPTERA. Linn. Lamarck, Cuvier, Leach.

Class RHYNOTA. Fabricius.

Order HEMIPTERA, Section 1. HETEROPTERA. Latr.

Characters of the Order.

Rostrum attached to the anterior extremity of the head. Elytra somewhat crustaceous, or coriaceous with the apex membranaceous, placed in an horizontal direction, one decussating the other. Thorax with the first segment, (which bears the feet,) larger than the following one. Haustellum with three setæ. Ocelli or little eyes, two, one obsolete.

Obs. The metamorphosis of all the order is semi-complete.

SECTION I. TERRESTRIA.

Obs. The insects which compose this section are not

only distinguished from the second section by their economy, but likewise by the structure of some essential organs. The antennæ of this division are exerted, and are very distinct.

TRIBE I. PENTATOMIDES.

Antennæ composed of five joints. Rostrum with four distinct joints, the three first of nearly an equal length. Labrum very long, striated. Tarsi with three distinct joints, the first elongate. Head trigonate, immersed even to the eyes in the thorax.

FAMILY I. Scutellerida.

Scutellum elongate, covering the elytra and the wings.

GENUS CCCLX. SCUTELLERA. Lam. Latr. Leach.

TETRYA. Fabricius.

CIMEX. Linn. Gmelin, Wolff.

Scutellum covering the whole of the abdomen, longer than broad. Thorax very narrow in front. Antennæ with the second joint shorter than the third.

Sp. 1. *Sexmaculata*. Red shining with silver; feet, antennæ, middle of the thorax, six spots on the scutellum, breast, epigastrium, and margin of the abdomen, black.

Scutellera sexmaculata. Leach's *Zoological Miscellany*, vol. i. p. 36. tab. 14.

Inhabits new Caledonia.

GENUS CCCLXI. TETRYA. Fabricius, Leach.

SCUTELLERA. Latreille.

CIMEX. Linn.

Scutellum longer than broad, not covering the sides of the abdomen. Thorax very narrow in front. Antennæ with the second joint longer than the third.

Sp. 1. *Lineata*. Red, thorax with six black lines; scutellum with four black spots; marginal spots of the abdomen, and six lines of black punctures.

Cimex lineatus. Linn.

Tetrya nigro-lineata. Fabricius.

Scutellera nigro-lineata. Latreille.

Inhabits the southern parts of Europe.

GENUS CCCLXII. THYREOCORIS. Schrank, Leach.

SCUTELLERA. Latreille.

TETRYA. Fabricius.

CIMEX. Wolff.

Scutellum broader than long. Antennæ with the second joint very short. Thorax with the anterior margin not much narrower than the hinder margin.

Sp. 1. *Globus*. Orbiculate, somewhat triangular, broader behind, shining brassy-black, punctate; base of antennæ; row of punctures on each side of the abdomen, and knees, red-yellowish; scutellum with an impressed arcuate line on each side of the base.

Tetrya globus. Fabricius.

Cimex globus. Wolff. *Icon. Cim. fas.* 1. p. 3. tab. 1. fig. 3.

Inhabits southern Europe.

FAMILY II. Pentatomida.

Scutellum not covering the wings or elytra.

GENUS CCCLXIII. ELIA. Fabricius.

CIMEX. Linn. Wolff.

PENTATOMA. Latreille.

Body ovate. Thorax with the anterior margin much narrower than the hinder. Head longer than broad. An-

tennæ with the second joint not longer than the third; their base covered by the lateral margins of the head.

Sp. 1. *Acuminata*. Pale-yellowish, longitudinally lined with fuscous, impressed-punctate; a fuscous band running down the middle of the back, divided by a whitish line; last joint of the antennæ red.

Cimex acuminatus. Linn.

Elia acuminata. Fabricius.

Pentatoma acuminatum. Latreille.

Inhabits grassy places. It is rare in Britain.

GENUS CCCLXIV. PENTATOMA. Olivier, Latreille.

CIMEX. Fabricius, Wolff.

Body ovate. Thorax with the anterior margin much narrower than the hinder. Head with nearly equal diameters.

Sp. 1. *Bidens*. Body griseous above; thorax with a lengthened spine on each side behind.

Cimex bidens. Fabricius.

Pentatoma bidens. Latreille.

Inhabits Europe.

Sp. 2. *Prasinus*. Green above; hinder angles of the thorax without spines.

Cimex prasinus. Fabricius.

Inhabits Europe.

GENUS CCCLXV. CYDNUS. Fabricius.

PENTATOMA. Latreille.

Body ovate, somewhat orbicular; anterior margin of the thorax narrower than the hinder. Head nearly semicircular. Antennæ with the second joint longer than the third. Tibiæ spinulose.

Sp. 1. *Oleraceus*. Brassy dark green; sides of the head and thorax with a longitudinal line, on the latter red; outer margin of the elytra, a spot on each, with two spots and the apex of the scutellum red; thighs, (apex excepted,) and middle of the tibiæ yellowish.

Inhabits Europe.

TRIBE II. COREIDES.

Antennæ composed of four joints. Rostrum with four distinct joints, the first three of nearly an equal length. Labrum very long, striated. Tarsi with three distinct joints, the first elongate. Head trigonate, immersed even to the eyes within the thorax.

GENUS CCCLXVI. COREUS.* Fabricius, Lamarck, Wolff. Latreille.

CIMEX. Linn. Geoffroy, &c.

Antennæ inserted above a line drawn from the eyes to the base of the labrum; the last joint thick. Thorax with the anterior narrower than the posterior margin. Body ovate, the sides of the abdomen dilated. Head trigonate; neck not apparent.

Sp. 1. *Marginatus*. Red-fuscous, obscure; sides of the abdomen elevated, acute; antennæ with their internal base unidentate, the first and last joints blackish, the middle ones red; thighs beneath with a canal, and a few little teeth.

Coreus marginatus. Fabricius, Latreille.

Cimex marginatus. Linn.

Inhabits Europe. Is common on the dock.

GENUS CCCLXVII. BERYTUS. Fabricius.

NEIDES. Latreille.

Antennæ inserted above a line drawn from the eyes to the base of the labrum; geniculated about their middle; the first joint very long, the last thick. Body fili-

* From the *COREUS*, Dr Leach has formed a genus which he has named *MYCTIS*, the characters of which are vertex with two ocelli placed transversely; antennæ filiform, four-jointed, joints cylindric, equal, or with the first joint rather longest. Anterior four feet alike in size and form; hinder ones with thick thighs, and with the internal side of the tibiæ dilated; tarsi with the first joint longer than the other two conjoined. Body elongate, flat above; thorax triangular, very narrow in front; abdomen with dilated sides. This genus contains several species, one of which is figured in the first vol. of *Zoological Miscellany*, p. 92. tab. 40. under the title of *Myctis Crucifera*.

form. Head somewhat conic; neck not apparent. Scutellum minute, linear-conic. Feet elongate. Thighs clavate.

Sp. 1. Tipularius. Reddish-gray; antennæ as long as the body, with the last joint fuscous; clypeus acuminate, and produced; thorax with three elevated lines, which are parallel and longitudinal, two of these are marginal, the other dorsal; elytra striate nervous, impressed-punctate, spotted with fuscous.

Cimex tipularius. Linn.

Berytus tipularius. Fabricius.

Neidea tipularius. Latreille.

Inhabits grassy places.

GENUS CCCLXXVIII. *LYGÆUS.* Fabr. Wolff, Latr.

CIMEX. Linn. De Geer, &c.

Antennæ filiform, inserted beneath a line drawn from the eyes to the base of the labrum. Body elongate-ovate. Head trigonate, neck not apparent.

Sp. 1. Apterus. Red, with black spots. Elytra abbreviated.

Cimex apterus. Stewart.

Lygæus apterus. Fabricius.

Inhabits Europe.

GENUS CCCLXXIX. *CAPSUS.* Fabricius, Latreille.

CIMEX. Linn.

LYGÆUS. Wolff.

Head trigonate, neck not apparent. Antennæ setaceous; the second joint at the apex thick, the two last when combined, much shorter than the one before it.

Sp. 1. Ater. Body black.

Inhabits Europe in grassy places every where.

GENUS CCCLXX. *MIRIS.* Fabr. Latr.

CIMEX. Linn. Geoff. &c.

LYGÆUS. Wolff.

Antennæ setaceous, the second and following joints alike. Head trigonate. Neck not apparent.

Sp. 1. Vagans.

Lygæus Vagans. Wolff, &c. *Cim. fas. 4. p. 159. tab. 16. fig. 153.*

GENUS CCCLXXI. *MYODOCHA.* Latreille.

CIMEX. De Geer.

Head ovoid, with a distinct neck. Antennæ slightly thicker towards their extremities.

Sp. 1. Tipuloides.

Cimex tipuloides. De Geer, *Mem. sur les Insectes*, 5. 354. tab. 35. fig. 18.

Myodocha tipuloides. Latreille.

TRIBE III. CIMICIDES.

Rostrum with two or three distinct joints. Labrum very short, not projecting. Feet simple. Eyes not very large.

FAMILY I. Cimicida.

Feet formed for walking on the earth, with distinct nails.

GENUS CCCLXXII. *NABIS.* Latreille.

CIMEX. De Geer.

REDUVIUS. Wolff.

Body not linear. Antennæ inserted below the middle of the head. Rostrum, with the second joint almost as long as the third. Thorax not bilobed.

Sp. 1. Gigas. Brown, obscurely rayed with red.

Reduvius gigas. Wolff. *Cim. 12. fig. 113.*

GENUS CCCLXXIII. *REDUVIUS.* Fabr. Oliv. Lam. Latr.

CIMEX. Linn. Geoff. De Geer.

Body not linear. Antennæ inserted above a line drawn from the eyes to the base of the rostrum. Ros-

trum, with the middle joints evidently longer than the others. Thorax bilobate, abruptly elevated behind. Tibiæ alike, elongate, somewhat cylindric.

Sp. 1. Personatus. Black.

Reduvius personatus. Fabr. Latr.

Inhabits Europe, is often found in houses, and is said to destroy the common house bug, *Cimex lectularius*.

GENUS CCCLXXIV. *PETALOCHEIRUS.* Leach.

PETALOCHEIRUS. Palissot de Beauvois.

REDUVIUS. Latreille.

Body not linear. Rostrum, with the middle joint evidently longer than the others. Thorax abruptly elevated behind, bilobate. Anterior tibiæ dilated into an oval plate.

Sp. 1. Variegatus. Body variegated.

Petalochetus variegatus. Palissot de Beauvois.

Inhabits Africa.

GENUS CCCLXXV. *ZELUS.* Fabricius, Latreille.

CIMEX. Linnæus, De Geer.

Body linear. Anterior pair of feet like the others in form; four hinder ones very long, and filiform.

Sp. 1. Longipes.

Zelus longipes. Fabr. Latr.

GENUS CCCLXXVI. *PTOARIA.* Scopoli, Latreille.

GERRIS. Fabricius, Schellenberg.

CIMEX. Geoffroy.

Body filiform. Four posterior feet very long, filiform; anterior feet raptorious, with very long coxæ.

Sp. 1. Vagebunda.

Gerris vagebundus. Fabricius.

GENUS CCCLXXVII. *CIMEX.* Linn. Latr.

ACANTHIA. Fabricius.

Body depressed. Rostrum short, setaceous. Wings none.

Sp. 1. Lectularius. Reddish brown, with short hair.

Cimex lectularius. Linn. Fabr. Latr. &c.

Acanthia lectularia. Fabricius.

Inhabits European houses, sucking the blood of man.

The common bug.

GENUS CCCLXXVIII. *MACROCEPHALUS.* Swederus.

SYRTIS. Fabricius.

ACANTHIA. Schellenberg, Wolff.

Abdomen with the sides dilated into an angle. Anterior feet raptorious. Antennæ capitate, the last joint very large, elongate-ovate. Scutellum very large, unconnected with the thorax, covering nearly the whole of the abdomen.

Sp. 1. Cimicoides.

Macrocephalus cimicoides. Swederus, *Nov. Act. Stockh.* 8. 1787. 3. tab. 8. Fig. 1.

Syrta manicata. Fabricius.

Inhabits Georgia and Carolina.

GENUS CCCLXXXIX. *PHYMATA.* Latreille, Leach.

SYRTIS. Fabricius.

ACANTHIA. Schellenberg, Wolff.

Body membranaceous, lateral margins elevated. Thorax prolonged into a scutellum behind. Antennæ contiguous at their base, with the last joint thicker and larger, received into a cavity under the sides of the thorax. Anterior feet raptorious.

Sp. 1. Crassipes.

Syrta crassipes. Fabricius.

Phymata crassipes. Latreille.

Inhabits France and Germany.

GENUS CCCLXXX. *TINOIS.* Fabricius, Latr.

CIMEX. Linn. Geoff. De Geer.

ACANTHIA. Schrank, Schellenberg, Wolff.

Body entirely depressed, reticulated. Feet all simple. Antennæ terminated by an oval joint, the third joint very long.

Sp. 1. Cardui. Body greyish.
Tingis cardui. Fabricius, Panzer, Latreille.
 Inhabits thistles.
 GENUS CCCLXXX.² *ARADUS.* Fabricius, Panzer.
 CIMEX. Linn. Geol. De Geer.
 ACANTHIA. Schrank. Wolff.
 COREUS. Schellenberg.
 Body depressed. Feet all simple. Antennæ with cylindrical joints, the second articulation longest.
Sp. 1. Lunatus.
Aradus lunatus. Fabricius, Latreille.
 Inhabits Europe.

FAMILY II. *Gerrida.*

Feet very long, formed for walking on the water, with the nails very minute, inserted laterally into a fissure at the extremity of the last joint of the tarsi.

GENUS CCCLXXXI. *HYDROMETRA.* Latreille, Lamarck, Fabricius.

CIMEX. Linnæus, Geoffroy.
 AQUARIUS. Schellenberg.
 Antennæ setaceous, the third joint much longer than the rest. Anterior feet simple. Head elongate-cylindrical, apex thickened.

Sp. 1. Stagnorum. Black above; feet brown-reddish.
Hydrometra stagnorum. Fabricius.
Cimex stagnorum. Linnæus.
Aquarius paludum. Schellenberg.
 Inhabits Europe in moist places.
 GENUS CCCLXXXII. *VELIA.* Latreille.
 CIMEX. Rossi.
 HYDROMETRA. Fabricius.

Antennæ filiform, the first joint longest. Anterior feet raptorious. Rostrum two jointed. Head somewhat vertical.

Sp. 1. Rivulorum. Black; sides of the thorax and margins of the abdomen red. Thorax with two anterior punctures; each elytra with three, and a spot of white; inferior sides of the abdomen-punctured with black.

Hydrometra rivulorum. Fabricius.
Velia rivulorum. Latreille.
 Inhabits running water and springs.

Sp. 2. Currens. Apterous, black. Thorax anteriorly, with two silky white spots. Middle of the under part of the abdomen, and its elevated margin, with red punctures.

Velia currens. Latreille.
Hydrometra currens. Fabricius.
 Inhabits Europe.

Dr Leach is of opinion, that this is merely the young state of the preceding species.

GENUS CCCLXXXIII. *GERRIS.* Latreille.
 CIMEX. Linnæus, De Geer, Schrank, Geoffroy.
 AQUARIUS. Schellenberg.
 HYDROMETRA. Fabricius.

Antennæ filiform, the first joint longest, the last cylindrical. Anterior feet raptorious. Rostrum three-jointed. Head prorected.

Sp. 1. Paludum. Brown-olive, black above, cinereous, silky beneath. Abdomen nearly equally broad. Trunk as long as the head, carinated beneath, a series of impressed lines on each side. Antennæ and feet black. Thorax with an elevated line, extending to the middle of the back. Lateral margins of the thorax and abdomen with the anus reddish.

Hydrometra paludum. Fabricius.
Gerris paludum. Latreille.
 Inhabits France, England, and Sweden.

The species of this genus are certainly but little known; they are either subject to great variation, or are very numerous.

TRIBE VI. ACANTHIDES.

Labrum prominent. Eyes very large. Feet formed for walking and jumping.

GENUS CCCLXXXIV. *ACANTHIA.* Schrank, Latr.
 CIMEX. Linnæus, De Geer, Geoffroy.
 SALDA. Fabricius.
 LYGEUS. Wolff.

Antennæ filiform, Rostrum straight, long.
Sp. 1. Maculata. Black spotted, with pale colour.
Acanthia maculata. Latreille.

Inhabits Europe in moist places.
 GENUS CCCLXXXV. *LEPTOPUS.* Dufour, Latr.
 Antennæ setaceous. Rostrum arcuate, short.

Obs. Of the species we know nothing; the genus was first observed by Dufour in southern France.

SECTION II. AQUATICA.

Antennæ very minute, not exerted, inserted beneath the eyes.

Obs. All the insects of this Section live in the water.

TRIBE V. BELOSTOMIDES.

Tarsi alike, all cylindrical, biarticulated, and furnished with nails. Body depressed.

FAMILY I. *Pelagonida.*

Anterior feet not raptorious.
 GENUS CCCLXXXVI. *PELOGONUS.* Latreille.
 Feet all formed for walking. Tarsi of the anterior pair of feet, with the first joint very short. Body orbiculate-ovate. Antennæ four-jointed.

Sp. 1. Marginatus.
Pelagonus marginatus. Latreille, *Gen. Crust. et Ins.* 3, 143.

Acanthie bordée. Latreille, *Hist. Nat. des Crust. et des Insect.* 12, p. 142.

Inhabits the south of France.

FAMILY II. *Belostomida.*

Anterior feet raptorious.
 GENUS CCCLXXXVII. *GALGULUS.* Latreille.
 NAUCORIS. Fabricius.

Tarsi of all the feet biarticulate, cylindrical, with two strong equal nails. Antennæ simple, inserted beneath the internal angle of the eyes, three-jointed.

Sp. 1. Oculatus.
Galgulus oculatus. Latreille.
Naucoris oculatus. Fabricius.

Inhabits Carolina.
 GENUS CCCLXXXVIII. *BELOSTOMA.* Latreille.

Tarsi of the anterior feet with a simple nail. Antennæ semi-pectinate, inserted under the eyes, four-jointed.

Sp. 1. Testaceo-pallidum. Pale, testaceous, eyes cinereous.
Belostoma testaceo-pallidum. Latreille.

Inhabits South America.

TRIBE VI. NEPIDES.

Anterior tarsi united with the tibiae. Body depressed or linear.

FAMILY I. *Naucorida.*

Anus without setæ. Tarsi of the four posterior feet distinctly biarticulate. Antennæ four-jointed.

GENUS CCCLXXXIX. NAUCORIS. Geoffroy, Fabricius, Olivier, Latreille.

NEPA. Linnæus, De Geer.

Four posterior feet ciliated, formed for swimming. Antennæ inserted beneath the eyes. Body ovate, much depressed.

Obs. This genus, in habit, makes a near approach to the family *Belostomida*, and should perhaps be placed in that division.

FAMILY II. *Nepida*.

Anus furnished with two setæ. Tarsi of the four posterior feet one jointed. Antennæ three jointed.

GENUS CCCXC. NEPA. Linn. De Geer, Fabr. Oliv. Lam. Latr.

NEPA. Geoffroy.

Rostrum perpendicularly inflected. Body oval. Anterior thighs thick. Four hinder feet not elongate-filiform.

Sp. 1. *Cinerea*. Dark-greyish-black.

Nepa cinerea. Linn. Fabr. Latr.

Punaise d'eau scorpion aquatique. De Geer.

Le Scorpion aquatique a corps ovale. Geoffroy.

Inhabits the ditches of Europe.

GENUS CCCXCI. RANATRA. Fabr. Schellenberg, Latr.

NEPA. Linn. De Geer, Oliv. Lam.

NEPA. Geoffroy.

Rostrum porrected. Body linear. Four hinder feet very long, filiform. Thighs of anterior feet elongate.

Sp. 1. *Linearis*. Greyish-brown.

Ranatra linearis. Fabr. Latr. Schell.

Nepa linearis. Linn.

Punaise d'eau scorpion allongé. De Geer.

Le Scorpion aquatique a corps allongé. Geoff.

Inhabits the ditches and ponds of Europe. It is very local in this country. It may occasionally be found near London in Copenhagen Fields, and in ponds near Hammersmith. It has likewise been taken near Halesworth in Suffolk.

TRIBE VI. NOTONECTIDES.

Tarsi of anterior feet not united with the tibiae. Body depressed cylindric, or cylindric-oval.

FAMILY I. *Notonectida*.

Tarsi all with two joints.

GENUS CCCXCII. NOTONECTA. Linn. Geoff. Fabr. Oliv. Latr.

NEPA. De Geer.

Scutellum triangular, large. Four anterior feet with strong nails; the hinder pair elongate, ciliated, with very minute nails.

Sp. 1. *Glaucia*.

Notonecta glauca. Linn. Fabr. Latr.

Inhabits fresh waters of Europe.

FAMILY II. *Corixida*.

Tarsi of the four anterior feet one-jointed, of the hinder pair two-jointed.

GENUS CCCXCIII. CORIXA. Geoff. Oliv. Lam. Latr. NOTONECTA. Linn.

NEPA. De Geer.

SIGARA. Fabr. Schrank, Schellenberg.

Anterior pair of feet without nails; the other feet long, furnished with nails. Scutellum none.

Sp. 1. *Striata*.

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Notonecta striata. Linn.

Sigara striata. Fabr.

Corixa striata. Latr.

This species seems to be subject to very great variety in colour and size. It occurs in almost every pond and rivulet, especially where the bottom is slimy.

ORDER IX. OMOPTERA.

Order HEMIPTERA. Linn. Cuvier, Lamarck.

Class RYNGOTA. Fabricius.

Order HEMIPTERA, Section 2, *Homoptera*. Latr.

Order OMOPTERA. Leach.

Characters of the Order.

Rostrum attached to the inferior part of the head. Elytra coriaceous or membranaceous throughout, suture straight. Thorax composed of two segments, the second as long or longer than the first. Ocelli three.

Observe. Metamorphosis semicomplete, or incomplete.

TRIBE I. TETTIGONIDES.

Antennæ composed of six distinct joints. Ocelli or little eyes three. Tarsi with three joints.

GENUS CCCXCIV. TETTIGONIA. Fabr.

CICADA. Lamarck, Geoff. Linn. De Geer, Latr.

Thighs of the anterior feet thick, dentate.

Sp. 1. *Hematodes*. Body slightly silky tomentose, black; anterior segment and margins of the thorax, sides of the abdomen and nervures of the elytra, ferruginous-red.

Cicada hematodes. Linn. Latr.

Tettigonia sanguinea. Fabr.

Inhabits southern Europe.

TRIBE II. CICADIDES.

Antennæ three-jointed. Ocelli two. Tarsi with three joints.

FAMILY I. *Fulgerida*.

Antennæ not inserted in the internal sinus of the eyes; the two first joints conjoined shorter than the head.

GENUS CCCXCV. FULGORA. Linn. Fabr. Latr. Oliv. Cuv.

Front produced into a rostrum. Eyes globular.

Sp. 1. *Lanternaria*. Rostrum very large oval. Elytra and wings variegated, with true wings ocellated.

Fulgora lanternaria. Linn. Fabr. Latr.

Inhabits Surinam. The rostrum of this, (as of all other species of the Genus) emits a phosphorescent light in the dark. The light of this species is so very vivid, as to enable one to read a newspaper.

Sp. 2. *Candelaria*. Front with a subulate, ascending rostrum. Elytra green, variegated with yellowish. Wings yellow with black tips.

Fulgora candelaria. Linn. Fabr. Donov.

Inhabits China, from whence it is very frequently sent home in collections of insects.

GENUS CCCXCVI. FLATA. Fabr.

FULGORA. Latreille.

Front as if truncated, vertical, not rostrated. Eyes globular. Elytra very broad, the external margin very much dilated. Body broad triangular.

Sp. 1. *Reticulata*.

Flata reticulata. Latr.

Inhabits Europe.

GENUS CCCXCVII. ISSUS. Fabr.

FULGORA. Latr. Olivier.

CICADA. Villers.

Front as if truncated, not rostrated, vertical. Elytra at their external base very much dilated, with the apex narrower. Body short, deltoid. Eyes globular.

Sp. 1. *Colophratus*. Elytra greyish, often banded or variegated with black.

GENUS CCCXCIII. CIXIUS. Leach.

FULGORA. Latreille.

FLATA. Fabricius.

Front as if truncated, not rostrated, vertical. Elytra with the external margin nearly straight, or scarcely arcuate. Body elongate, quadrate. Eyes globular.

Sp. 1. *Nervosus*.

Flata nervosa. Fabricius.

GENUS CCCXCIX. TETIGOMETRA. Latr.

FULGORA. Panzer.

Antennæ cylindric; second joint somewhat ovate-rounded, twice as long as the first; the apex excavated for the insertion of the third or last joint. Body ovate and depressed. Eyes triangulate.

Sp. 1. *Virescens*. Yellow-green eyes; and mouth black. Feet red.

Fulgora virescens. Panzer.

Tetigometra virescens. Latr.

Inhabits France and Germany.

FAMILY II. Delphacida.

Antennæ inserted in the internal sinus of the eyes; the two first joints as long, or longer than the head.

GENUS CCCC. ASIRACA. Latr.

DELPHAX. Fabricius.

Antennæ as long or longer than the thorax, the first joint very long, compressed, angulate.

Sp. 1. *Clavicornis*. Body brown, or obscure brown variegated; apex of the four anterior tibiae white; elytra semihyaline; apex with a fuscous band; nerves spotted with fuscous.

Delphax clavicornis. Fabr.

Asiraca clavicornis. Latr.

Inhabits France and England in grassy places.

GENUS CCCCCI. DELPHAX. Fabr. Latr.

Antennæ not, or scarcely, longer than the head; the first joint much shorter than the second.

Sp. 1. *Pellucida*. Body pellucid.

Delphax pellucida. Fabr.

Inhabits Europe amongst grass.

FAMILY III. Cercopida.

Antennæ inserted between the eyes. Thorax not transverse, hinder margin more or less prominent.

GENUS CCCCII. CETALION. Latr.

LYSTRA. Fabricius.

Antennæ inserted behind the frontlet.

Sp. 1. *Reticulatum*.

Lestra reticulata. Fabricius.

GENUS CCCCIII. CERCOPIUS. Fabr. Schrank, Latr.

CICADA. Linn.

TETIGONIA. Olivier.

Antennæ inserted on the frontlet, the second longer than the first joint, the third joint short conic. Thorax not dilated.

Sp. 1. *Sanguinolenta*. Black, shining; each wing-case with a spot at the base, one in the middle, and a flexuous band at the apex blood-red.

Cicada sanguinolenta. Linn.

Cercopis sanguinolenta. Fabr.

Inhabits France, Germany, and England.

GENUS CCCCIV. LEDRA. Fabr. Latr.

CICADA. Linn. Geoffroy.

MEMBRACIS. Olivier, Lamarck, Schrank.

Antennæ inserted on the frontlet, the two first joints equal in length, the first rather thickest, the third ending in a long seta. Thorax on each side dilated into an auricle.

GENUS CCCCIV. MEMBRACIS. Latr.

CENTROTUS. Fabr.

MEMBRACIS. Fabr.

CICADA. Linn.

Antennæ inserted in the frontlet; the two first joints nearly equally long; the third elongate-conic. Thorax dilated behind.

Sp. 1. *Cornutus*. Brownish.

Cicada cornuta. Linn.

Centrotus cornutus. Fabr.

Membracis cornuta. Latr.

FAMILY IV. Cicadida.

Antennæ inserted between the eyes. Thorax transverse, hinder margin straight.

GENUS CCCCVI. IASSUS. Fabr.

TETIGONIA. Latr. Olivier, Lamarck.

Front broad, not longer than broad, on each side above the insertion of the antennæ produced into an angle.

Sp. 1. *Lanio*.

Cicada lanio. Panzer.

Iassus lanio. Fabr.

Tetigonia lanio. Oliv. Lamarck.

Inhabits Europe.

GENUS CCCCVII. CICADA. Linn. Fabr. Latr.

TETIGONIA. Olivier, Lamarck.

Front elongate-quadrate, the apex truncate, convex, thickened.

Sp. 1. *Viridis*.

Cicada viridis. Fabricius, Panzer.

Tetigonia viridis. Latreille.

Inhabits Europe.

TRIBE III. PSYLLIDES.

Tarsi with two joints distinct. Antennæ with ten or eleven joints, the last with two setæ. Legs formed for leaping. Both sexes with wings.

GENUS CCCCVIII. PSYLLA. Geoffroy, Olivier, Lamarck, Latreille.

CHERMES. Linn. De Geer, Fabricius.

Antennæ filiform or slightly setaceous, as long as the body. Thorax with the anterior margin arcuate.

Sp. 1. *Alni*. Green-yellowish; anterior segment of the thorax, scutellum, squamula of the elytra and nervæ green.

Chermes betulae alni. Linn.

Chermes alni. Fabricius.

Psylla alni. Latreille.

Inhabits the alder.

GENUS CCCCIX. LIVIA. Latreille.

DIRAPHIA. Illiger.

Antennæ shorter than the thorax, the base much thickened even to the middle. Thorax with the anterior segment transverse, straight.

Sp. 1. *Juncorum*.

Livia juncorum. Latreille.

Inhabits Junci.

TRIBE V. APHIDES.

Tarsi two-jointed; the first joint very short. Rostrum in both sexes. Antennæ with six or seven or eight joints. Females generally apterous.

FAMILY I. *Thripsida*.

Tarsi with the last joint vesiculous. Antennæ eight-jointed. Rostrum minute, horizontal, externally without joints. Head elongate quadrate.

GENUS CCCCX. *Thrips*. Linn. Geoffroy, Latreille, Lamarck, Olivier.

Elytra and wings horizontal and linear.

Sp. 1. *Physapus*. Black, hairy; antennæ, tibiæ and tarsi pale; middle of the tibiæ pale brown; elytra and wings white.

Thrips physapus. Linn. Fabricius, Latreille.

FAMILY II. *Aphida*.

Tarsi with the last joint with two nails. Antennæ six or seven-jointed. Rostrum very distinct, nearly perpendicular, with three distinct joints. Head transverse.

GENUS CCCCXI. *Aphis*. Linn. Fabr. Latr. Oliv. Lam.

Antennæ setaceous or filiform, seven-jointed. Elytra larger than the wings, elongate-triangular. Abdomen towards the apex generally tuberculated or horned. Eyes entire.

The animals of this genus are very numerous, and are found on almost every plant. The French call them *Pucerons*, the English *Plant-lice*. The species require examination. The females are generally apterous.

GENUS CCCCXII. *Aleyrodes*. Latr. Lamarck.

TINEA. Linnæus.

PHALÆNA. Geoff.

Antennæ filiform, short, six-jointed. Elytra and wings equal in size. Body mealy. Eyes two, each divided into two.

Sp. 1. *Chelidonii*. Body yellowish, or rosy powdered with white; eyes black; each elytra with a puncture and spot of black.

TRIBE VI. *APHIDES*.

Tarsi with one joint and one nail. Rostrum in the female. Wings in the male, but no elytra. Female apterous.

GENUS CCCCXIII. *Dorthesia*. Bosc. Latr.

Coccus. Dorthes, Fabr. Oliv.

Antennæ of the female eight-jointed. Abdomen of the males very setose behind.

Sp. 1. *Characias*.

Coccus characias. Dorthes, Fabr.

Dorthesia characias. Bosc. Latr.

Inhabits the *Euphorbium characias* of southern France. GENUS CCCCXIV. *Coccus*. Linn. Geoff. Fabr. Oliv. Latr. Lam.

Antennæ of the female eleven jointed. Abdomen of the males with two very long setæ at the apex.

Sp. 1. *Cacti*.

Coccus cacti. Linn. De Geer, Fabr. Latr.

Inhabits fruit-trees.

This genus requires a minute investigation, which should be conducted by some one possessing a great share of patience, and having a very competent knowledge of entomology.

ORDER X. *APTERA*.

ORDER *APTERA*. Linn. Delam.

ORDER *SUCTORIA*. Latr.

Characters of the Order.

Body somewhat ovate, compressed, covered with a

coriaceous skin, and composed of several segments. Trunk short, consisting of three leg-bearing joints. Head small, compressed, rounded above, and truncate before. Eyes minute, orbicular, lateral. Antennæ lamelliform, small, ciliated with spinules, one-jointed at their base, inserted in two excavations behind the eyes. Palpi filiform (composed of four rounded joints), scarcely longer than the head, perfect, generally resting on the rostrum. Legs strong, and formed for jumping, especially the hinder ones. Coxæ and thighs large, compressed. Tarsi elongate, cylindric, composed of five simple joints, the last articulation furnished with two long, acute, slender nails.

LARVA without feet.

PUPA folliculate.

GENUS CCCCXV. *Pulex*, of authors.

Sp. 1. *Irritans*. Body brunnous, sometimes inclining to rust-colour.

The common bed-flea. Is found throughout Europe.

Notwithstanding the inconveniences attending this little insect, there is something pleasing in the appearance of the flea. Its motions are elegant, and all its postures indicate agility. The shell with which it is enveloped is in a state of perpetual cleanliness, while the muscular power which it is capable of exerting is so extraordinary, as to excite our wonder, at so much strength confined and concentrated within so small a space; this species being able to spring, on the most moderate computation, to the distance of at least 200 times its own length. It is remarkable, that Socrates was ridiculed for his pretended experiments on this subject, by Aristophanes. Arist. *Clouds*. act. i. scen. 2. This circumstance is alluded to in Butler's *Hudibras*.

Sp. 2. *Penetrans*. The chigger.

Inhabits the West Indies, penetrating the human skin, and depositing a parcel of eggs within a sac.

The pulices of birds and of mammalia ought to be most carefully examined. There are a vast number of species which have been confounded with *P. irritans*.

ORDER XI. *LEPIDOPTERA*.

ORDER *LEPIDOPTERA*. Linn. Cuv. Lam. Latr.

Class *GLOSSATA*. Fabr.

Characters of the Order.

Wings four, covered with scales. Tongue spiral, filiform.

Linné divided this order into three genera, viz. *Papilio* (butterfly), *Sphinx* (hawk-moth), and *Phalæna* (moth), which were characterized by the form of their antennæ; and these divisions form the three great sections of Latreille, as follow.

SECTION I. *DIURNA*.

Wings four; all, or at least the superior ones, erect, when the insect is at rest. Antennæ with their points thicker or capitate; in a very few somewhat setaceous, with the extreme apex hooked.

The insects of this section, which constituted the Linnean genus *Papilio*, all fly by day. Caterpillars with sixteen feet. Chrysalis naked, and generally angulated.

TRIBE I. *PAPILIONIDES*.*

Hinder tibiæ with heels only at their extremities. Antennæ not ungulated or hooked at their extremities. Wings all elevated when at rest.

* We shall for the most part only introduce the indigenous genera, with a complete enumeration of the British species.

FAMILY I. *Papilionida*.

Caterpillar elongate, cylindric. Chrysalis elongate, angular. Tarsi of Imago with distinct nails.

GENUS CCCCXVI. *PAPILIO*. Fabr. Latr. Leach.

Antennæ, at their points, furnished with a conic-ovate or lengthened-ovate, somewhat arcuate, club. Palpi very short, pressed close to the face, scarcely reaching the clypeus; the two first joints of equal length; the third minute, and nearly obsolete. Feet in both sexes alike, all being formed for walking, and furnished with distinct but simple claws. Anterior wings generally somewhat falcate; hinder ones often tailed; the internal margin excised or folded to admit of free play for the abdomen.

The caterpillar is tentaculated, fleshy, and furcate. The chrysalis angulated, with two processes before; it fastens itself by a transverse thread.

The species of this genus, which constitutes the most beautiful part of the creation, are found chiefly in the warmer regions, very few occurring in the more temperate parts of the world. Their flight is extremely rapid.

Sp. 1. Machaon. Black and yellow; hinder wings tailed; edges of the wings black, with yellow crescents; the tips of the hinder ones with a red spot at their inferior tips.

Papilio Machaon. Linn. Fabr.

Inhabits Europe; the larva in the fennel.

In England it is called the *Swallow-tailed Butterfly*, and is very local. It is the most superb of all the British species of this family. The caterpillar is green, banded with black, marked by a row of red-spots. It changes into the chrysalis state in July; and the fly is found in August. Two broods are said to be found; the first in May, having lain in the chrysalis or pupa state all the winter.

Papilio podalirius of Linné, which belongs to this genus, has been introduced into the British *Fauna*, on very dubious authority.

GENUS CCCCXVII. *DORITIS*. Fabricius.

PARNASSIUS. Latreille.

PIERIS. Schrank.

Feet all alike in both sexes. Ungues or claws simple. Palpi rising above the clypeus, very prominent, cylindric-conic, with three very distinct joints. Antennæ with a thickened, somewhat ovate straight head. Hinder wings not tailed; the internal margin excised, to admit of free play for the abdomen.

The chrysalis smooth, somewhat foliaceous.

Sp. 1. Apollo. Wings white, rounded, spotted with black; the lower pair marked with annular red spots.

Papilio Apollo. Gmelin.

Parnassius Apollo. Latr.

Doritis Apollo. Fabr.

Inhabits Germany and France.

Larva black, spotted with red. Chrysalis brown, powdered with violet.

This elegant insect, which has been confounded by some authors with *Doritis Nemoisne* and *Phabus*, is mentioned here in order to inform the reader, that it has no right or title whatever to a place in the British *Fauna*, although it has been described as such by Mr Harworth, and has been figured by Mr Donovan on the most vague and unsatisfactory authority.

GENUS CCCCXVIII. *PONTIA*. Fabr.

PIERIS. Schrank, Latr.

Antennæ elongate, with an abrupt, obconic, compressed head. Palpi slender, somewhat cylindric; the last

joint as long as the preceding. Wings not very narrow, or much lengthened; hinder ones grooved to admit the abdomen, but not tailed. Feet alike in both sexes; claws unidentate or bifid.

Chrysalis angulated, fastened by a transverse thread.

* Anterior wings somewhat trigonate; hinder ones somewhat orbiculate.

Sp. 1. Cratægi. Wings white, with a faint tinge of yellowish and black nervures.

Papilio cratægi. Linn.

Pieris cratægi. Schrank, Latr.

Pontia cratægi. Fabr.

Inhabits Europe. In England, it is found near London, where it is called Black-veined white.

Sp. 2. Brassicæ, (large cabbage-butterfly.)

Papilio brassicæ. Linn.

Pontia brassicæ. Fabr.

Pieris brassicæ. Latr.

Inhabits Europe everywhere. The larva feeds on the cabbage.

Sp. 3. Rapæ, (small cabbage-butterfly.)

Papilio rapæ. Linn.

Pontia rapæ. Fabr.

Pieris rapæ. Latr.

Inhabits Europe on cabbages.

Sp. 4. Napi, (green-veined white butterfly.)

Papilio napi. Linn.

Pontia napi. Fabr.

Pieris napi. Latr.

Inhabits Europe everywhere.

Sp. 5. Cardamines, (orange-tipt butterfly.)

Papilio cardamines. Linn.

Pontia cardamines. Fabr.

Pieris cardamines. Latr.

Inhabits Europe. The larva feeds on the *Cardamine pratensis*.

Papilio daphidice, Linn.; *Pontia daphidice*, Fabr.; *Pieris daphidice* of Latreille, has been introduced into the British catalogue, but on very slender authority.

** Wings somewhat oval.

Sp. 1. Sinapis. Wings white, with blackish tips. (Wood white butterfly.)

Papilio sinapis. Gmelin.

Pieris sinapis. Latr.

GENUS CCCCXIX. *COLIAS*. Fabr. Latr.

PIERIS. Schrank.

Antennæ short, gradually thickening into an obconic head. Palpi much compressed; the last joint very short. Feet alike in both sexes, all with bifid, or unidentate nails. Wings anterior, somewhat trigonate; hinder rounded, with a groove to receive the abdomen.

Chrysalis angulated, fastened by a transverse thread.

Sp. 1. Hyale, (clouded yellow butterfly.)

Papilio Hyale of authors.

Pieris Hyale. Schrank.

Colias Hyale. Fabr. Latr.

Inhabits Europe. Occurs in England once in three years, in great plenty, in every part of the country. There is a pale coloured variety of each sex, which have been considered as distinct species.

GENUS CCCCXX. *GONEPTERYX*. Leach.

COLIAS. Fabr. Latr.

PIERIS. Schrank.

Antennæ short, gradually thickening into an obconic head. Palpi short, much compressed; the last joint very short. Feet alike in both sexes, all with a bifid or unidentate nail. Wings angulated, large, the hinder one grooved to receive the abdomen.

Chrysalis angulated, with a thread round its middle.

Sp. 1. Rhamni. Wing of the male yellow, of the female whitish; with a fulvous spot on each.

Papilio rhamni. Linn.

Colias rhamni. Fabr. Latr.

Pieris rhamni. Schrank.

Gonepteryx rhamni. Leach.

Inhabits Europe in the spring and autumn. Flight slow.

GENUS CCCCXXI. ARGYNNIS. Fabr. Latr.

Antennæ terminated with a short club. Palpi divaricating abruptly, terminated with a minute, slender, acicular, very short joint; the second joint broad, hairy. Hinder wing orbicular. Anterior feet very short in both sexes. Tarsi with double nails.

Chrysalis suspended by the tail.

Caterpillars spiny.

Sp. 1. Lathonia.

Papilio Lathonia. Linn.

Argynnis Lathonia. Fabr.

Inhabits Europe. It is very rare in Britain.

Sp. 2. Aglaia.

Papilio Aglaia. Linn.

Argynnis Aglaia. Fabr.

Inhabits Europe. Is very common. *Papilio Charlotta* of Sowerby and Haworth seem to be but an accidental variety of this species.

Sp. 3. Adippe.

Argynnis Adippe. Fabr.

Inhabits heaths and the borders of woods throughout Europe.

Sp. 4. Paphia.

Papilio Paphia. Linn.

Argynnis Paphia. Fabr. Latr.

Inhabits the borders of woods in Germany, England, and France.

GENUS CCCCXXII. MELITEA. Fabr.

ARGYNNIS. Latr.

Antennæ terminated by a short club. Palpi very hairy, divaricating, with the last joint acicular, half the length of the preceding joint. Hinder wings orbicular. Anterior feet very short in both sexes. Tarsi with double nails.

Caterpillars pubescent, with fleshy tubercles.

Chrysalis suspended by the tail.

Sp. 1. Euphrosyne. (Pearly border).

Papilio Euphrosyne. Linn.

Argynnis Euphrosyne. Latr.

Melitæa Euphrosyne. Fabr.

Inhabits waste grounds and heaths.

Sp. 2. Silene. (Pearly border likeness).

Melitæa Silene. Fabr.

Inhabits the same places with the preceding species.

Sp. 3. Cinzia. (Glanville).

Papilio Cinzia. Gmelin.

Melitæa Cinzia. Fabr.

Argynnis Cinzia. Latr.

Inhabits Europe. Rare in Britain.

Sp. 4. Artemis. (Greasy).

Papilio Artemis. Gmelin.

Melitæa Artemis. Fabr.

Inhabits Europe. Is common near Norwich in Norfolk.

Sp. 5. Dictynna. (Heath).

Papilio Dictynna. Gmelin.

Melitæa Dictynna. Fabr.

Inhabits heaths and marshes. *Papilio eos* of Haworth seems to be a variety.

Sp. 6. Lucina. (Duke of Burgundy).

Papilio Lucina. Gmelin.

Melitæa Lucina. Fabr.

Inhabits borders of woods and hedges.

GENUS CCCCXXIII. VANESSA. Fabricius, Latreille.

Antennæ terminated with an abrupt short club. Palpi contiguous and terminated gradually in a point; the two combined bearing some resemblance to a rostrum. Anterior pair of feet in both sexes short and very hairy. Tarsi with double nails. Chrysalis suspended by its tail. Caterpillar spiny.

Sp. 1. Atalanta. (Red admirable.)

Papilio Atalanta. Linn.

Vanessa Atalanta. Fabricius, Latreille.

Inhabits Europe. The larva on nettles.

Sp. 2. Cardui. (Painted lady.)

Papilio cardui. Linn.

Vanessa cardui. Fabricius, Latreille.

Sp. 3. Antiopha. (Camberwell beauty.)

Papilio Antiopha. Linn.

Vanessa Antiopha. Latreille.

Inhabits Europe. The English variety has invariably a white margin to the wings.

Sp. 4. Io. (Peacock.)

Papilio Io. Linn.

Vanessa Io. Fabricius, Latreille.

Inhabits the nettle.

Sp. 5. Polychloros. (Large tortoise-shell.)

Papilio Polychloros. Linn.

Vanessa Polychloros. Fabricius.

Inhabits Europe. The larva on the elm.

Sp. 6. Urticæ. (Small tortoise-shell.)

Papilio urticæ. Linn.

Vanessa urticæ. Latreille, Fabricius.

Inhabits Europe.

Sp. 7. C-album. (Comma.)

Papilio c-album. Linn.

Vanessa c-album. Fabricius.

GENUS CCCCXXIV. HIPPARCHIA. Fabricius, Leach.

MANIOLA. Schrank.

SATYRUS. Latreille.

Antennæ with a slender somewhat fuciform or somewhat trigonate orbicular club. Palpi meeting above the tongue, with the second joint very much compressed, and very much longer than the first. Anterior pair of legs shorter than the rest, and often very hairy; feet of the other legs with double nails. Hinder wings somewhat orbicular or orbiculate-triangular, with the internal margin excavated to receive the abdomen; the middle cell closed behind, from which part the nervi radiate; the other margin entire, or with acute or obtuse indentations. Caterpillar downy, with a globular head somewhat compressed in front; the abdomen bimucronate behind. Chrysalis angulated, with the front bimucronate suspended by the tail. Leach's *Zoolog. Miscel.* vol. i. p. 27.

Sp. 1. Galathea. (Marbled.)

Papilio Galathea. Linn. Gmelin.

Hipparchia Galathea. Fabricius.

Satyrus Galathea. Latreille.

Inhabits Europe in fields.

Sp. 2. Hyperanthus. (Eyed.)

Papilio Hyperanthus. Linn.

Hipparchia Hyperanthus. Fabr.

Satyrus Hyperanthus. Latreille.

Inhabits Europe in fields.

Sp. 3. Pamphilus. (Heath.)

Papilio Pamphilus. Linn. Gmelin.

Hipparchia Pamphilus. Fabricius.

Satyrus Pamphilus. Latreille.

Inhabits heaths.

Sp. 4. Blandina. (Scotch argus.)

Papilio blandina. Donovan.

Inhabits the isles of Bute and Arran. The male has been confounded with *Hipparchia Ligea* of Fabricius, to which species it is very dissimilar.

Sp. 5. Pilosella. (Small meadow brown.)

Papilio pilosella. Gmelin.

Hipparchia pilosella. Fabricius.

Satyrus pilosella. Latreille.

Inhabits fields and the borders of woods.

Sp. 6. Janira.

Papilio janira. Linn.

Papilio jurtina. Linn.

Hipparchia janira. Fabricius.

Satyrus janira. Latreille.

Inhabits fields.

Sp. 7. Megæra. (Gate-keeper.)

Papilio megæra. Gmelin.

Hipparchia megæra. Latreille.

Inhabits fields and the borders of woods.

Sp. 8. Egeria. (Wood argus.)

Papilio egeria. Linn. Gmelin.

Hipparchia egeria. Fabricius.

Inhabits borders of woods and fields.

Sp. 9. Semele.

Papilio semele. Gmelin.

Hipparchia semele. Fabricius.

Inhabits heaths and rocky wastes.

Obs. Besides the species of this genus here enumerated, there are others which have been taken in this country, viz. 1. *Papilio Hero* of Donovan; 2. *Papilio Typhon*; and, 3. *Papilio Daasus* of Haworth: But as these names are probably wrongly assigned to these insects, we shall say nothing more on the subject, but leave this point to be ascertained by the investigations of the reader.

GENUS CCCCXXV. *LIMENITIS.* Fabricius.

NYMPHALIS. Latreille.

Antennæ gradually clubbed; club slender, round-obconic. Palpi as long as the head, with the second joint not very compressed; the anterior margin not remarkably broader. Anterior pair of feet in both sexes very short and spurious. Wings not much longer than broad. Four hinder feet with double nails. Larva elongate. Chrysalis suspended by the tail.

Sp. 1. Camilla. (White admirable.)

Papilio camilla. Linn. Gmelin.

Limenitis camilla. Fabricius.

Nymphalis camilla. Latreille.

Inhabits Europe. Is rare in Britain, except in Charlton wood, Kent, where it is found in great plenty.

GENUS CCCCXXVI. *APATURA.* Fabricius.

NYMPHALIS. Latreille.

Antennæ with an elongate-obconic thickened club. Palpi with the second joint not much compressed, the anterior margin broad. Anterior pair of feet very short in both sexes.

Sp. 1. Iris. (Purple emperor.)

Papilio iris. Donovan, Haworth.

Apatura iris. Fabricius?

Nymphalis iris. Latreille.

Inhabits England.

This beautiful insect is called wood emperor, emperor of Morocco, &c.

FAMILY II. *Lycanida.*

Larva oval, depressed. Pupa or chrysalis short, con-

tracted, obtuse at both extremities. Tarsi with very small nails.

GENUS CCCCXXVII. *THECLA.* Fabr.

POLYOMMATUS. Latr.

Feet in both sexes all alike; nails scarcely produced beyond the pulvilli, which are large. Antennæ gradually clubbed; the club elongate, cylindric oval. Hinder wings tailed.

Sp. 1. Betula. (Brown hair streak.)

Papilio betula. Gmelin.

Thecla betula. Fabr.

Polyommatus betula. Latr.

Inhabits Europe, frequenting the borders of woods.

Sp. 2. Pruni. (Black hair-streak.)

Papilio pruni. Hübner.

Thecla pruni. Fabr.

Inhabits borders of woods.

Sp. 3. Quercus. (Purple hair-streak.)

Papilio quercus. Gmelin.

Thecla quercus. Fabr.

Polyommatus quercus. Latr.

Inhabits oak woods, flying on the highest branches of the trees.

GENUS CCCCXXVIII. *LYCÆNA.* Fabr.

POLYOMMATUS. Latr.

Legs alike in both sexes; nails projecting beyond the pulvilli, which are small. Antennæ with an abrupt club, somewhat ovate, or somewhat oval.

* Hinder wings more or less tailed.

Sp. 1. Dispar. (Large copper.)

Papilio dispar. Haworth.

Papilio hyothoe. Donovan.

Inhabits the fens of Cambridgeshire, and has been observed near Aberdeen in Scotland.

Sp. 2. Chryseis. (Purple-edged copper.)

Lycæna chryseis. Fabr.

Inhabits Europe. In Britain it is extremely rare.

Sp. 3. Virgaurea. (Scarce copper.)

Lycæna virgaurea. Fabr.

Polyommatus virgaurea. Latr.

Papilio virgaurea. Gmelin.

Inhabits Europe. Very local in Britain. It is found in some parts of Huntingdonshire.

Sp. 4. Phleas. (Small copper.)

Lycæna phleas. Fabr.

Polyommatus phleas. Latr.

Inhabits Europe; much attached to syngenesious plants.

Sp. 5. Rubi. (Green underside.)

Papilio rubi. Gmelin.

Lycæna rubi. Fabr.

Polyommatus rubi. Latr.

Inhabits Europe.

** Hinder wings with the posterior margin entire.

Sp. 6. Corydon. (Chalk-hill blue.)

Papilio corydon. Linn. Gmelin.

Lycæna corydon. Fabr.

Polyommatus corydon. Latr.

Inhabits chalky districts.

Sp. 7. Adonis. (Clifden blue.)

Papilio adonis. Linn. Gmelin.

Lycæna adonis. Fabr.

Inhabits chalky districts.

Sp. 8. Dorylas. (Common blue.)

Papilio dorylas. Gmelin?

Papilio icarus. Lewin.

Inhabits Europe everywhere.

- Sp. 9. Argus.* (Studded blue).
Papilio Argus. Gmelin.
Lycæna Argus. Fabr.
Polyommatus Argus. Latr.
 Inhabits fields and marshes.
Sp. 10. Idas. (Black-spot brown).
Papilio Idas. Gmelin.
Lycæna Idas. Fabr.
 Inhabits Europe.
Sp. 11. Ariaxerxes. (White-spot brown).
Papilio Ariaxerxes. Gmelin, Stewart.
Lycæna Ariaxerxes. Fabr.
 Inhabits Arthur's Seat, and the base of Kirk-hill, one of the Pentland range, near Edinburgh, in great plenty.
Sp. 12. Alsus. (Bedford blue).
Papilio Alsus. Gmelin.
Lycæna Alsus. Fabr.
Polyommatus Alsus. Latr.
 Inhabits Europe.
Sp. 13. Argiolus. (Azure blue).
Papilio Argiolus. Gmelin.
 Inhabits meadows.
Sp. 14. Cymon.
Papilio Cymon. Gmelin, Lewin.
 Inhabits Europe. In Britain it is very local. It is found near Sherborne in Dorset, in great abundance.

TRIBE II. HESPERIDES.

Hinder tibiæ with two pair of heels or spurs, one pair at the middle, the other at the usual place. Antennæ hooked at their extremities. Hinder wings elevated when the insect is at rest.

FAMILY I. *Uranida.*

- Antennæ filiform, their points narrower and bent.
 Palpi long, slender.
 GENUS CCCCXXIX. URANIA. Fabr. Latr.
Papilio. Linn. Crammer.
 Palpi with the second joint much compressed, the third slender, somewhat cylindric, almost naked.
Sp. 1. Leilus.
Papilio Leilus. Linn.
Urania Leilus. Fabr.

FAMILY II. *Hesperida.*

- Antennæ distinctly terminated with a club. Palpi short, thick, and squamose in front.
 GENUS CCCCXXX. HESPERIA. Fabr. Cuv. Lam.
 Latr. Walck.
Papilio. Linn.
 Palpi with the third joint cylindric, or cylindric-conic.
 * Antennæ ending in an abrupt, very acute hook.
Sp. 1. Comma. (Pearl skipper).
Papilio Comma. Gmelin.
Hesperia Comma. Fabr. Latr.
 Inhabits Europe. In England, near Lewes, in Sussex.
Sp. 2. Sylvanus. (Wood-skipper).
Papilio Sylvanus. Gmelin.
Hesperia Sylvanus. Fabr. Latr.
 Inhabits the borders of woods.
 ** Antennæ with their points arcuate.
Sp. 3. Tages. (Dingy skipper).
Papilio Tages. Gmelin.
Hesperia Tages. Fabr. Latr.
 Inhabits Europe, on dry heaths and banks.

- Sp. 4. Malva.* (Mallow skipper).
Papilio malva. Gmelin.
Hesperia malva. Fabr. Latr.
 Inhabits dry banks.
 *** Antennæ with straight points.
Sp. 5. Linea. (Small skipper).
Hesperia linea. Fabr. Latr.
Papilio linea. Gmelin.
 Inhabits the margins of woods.
Sp. 6. Paniscus. (Scarce skipper).
Papilio Paniscus. Gmelin.
Hesperia Paniscus. Latr. Fabr.
 Inhabits meadows. Very rare in Britain, excepting in some parts of Bedfordshire, where it is common.

SECT. II. CREPUSCULARIA.

Wings horizontal in repose. Antennæ prismatic or fusiform.
 The insects of this tribe constitute the Linnean genus *Sphinx*, which has been divided by Fabricius, Latreille, Scopoli, and Hoffmannsegg, into a number of genera.

TRIBE I. SPHINGIDES.

- Palpi short, covered with very short, close scales; the last joint tuberculiform and very short.
 GENUS CCCCXXXI. LAOTHOË. Fabr.
Sphinx. Linn.
Spectrum. Scopoli.
Smerinthus. Latr.
 Antennæ somewhat prismatic, serrated towards the middle, gradually thicker. Tongue very short. Anterior wings angulated. Palpi contiguous.
Sp. 1. Ocellata. (Eyed hawk-moth).
Sphinx ocellata. Linn.
Laothoë ocellata. Fabr.
Spectrum ocellatum. Scopoli.
Smerinthus ocellatus. Latr.
 Inhabits Europe. The larva in the willow and poplar.
Sp. 2. Tilia. (Lime hawk-moth).
Sphinx tilia. Linn. Gmelin.
Laothoë tilia. Fabr.
Spectrum tilia. Scopoli.
Smerinthus tilia. Latreille.
 Inhabits the lime in the caterpillar state.
Sp. 3. Populi. (Poplar hawk-moth).
Sphinx populi. Linn. Gmelin.
Laothoë populi. Fabr.
Spectrum populi. Scopoli.
Smerinthus populi. Latr.
 Inhabits Europe. The larva on poplars and willows.
 GENUS CCCCXXXII. SPHINX. Linn. Fabr. Latreille.
Spectrum. Scopoli.
 Palpi contiguous above the tongue. Tongue long, very distinct, convoluted. Antennæ prismatic, thicker towards their middle, in the males slightly ciliated. Abdomen with the anus not bearded.
Sp. 1. Porcellus. (Small elephant hawk-moth).
Sphinx porcellus. Gmelin, Fabricius, Latreille.
 Inhabits Europe. Is rare in Britain.
Sp. 2. Elphenor. (Elephant hawk-moth).
Sphinx Elphenor. Linn. Latreille, Fabricius, Gmelin.
 Inhabits Europe.
Sp. 3. Lineata. (Silver line hawk-moth).
Sphinx lineata. Linn.
 Inhabits Europe. Obs. *Sphinx Lineata* of Donovan

is distinct, and must be considered as a doubtful inhabitant of Britain.

Sp. 4. Galii. (Scarce spotted elephant.)

Sphinx galii. Fabricius.

Inhabits Europe. Four specimens only have hitherto been taken in Great Britain; two in Cornwall near Penzance, one near Kingsbridge in Devon, and another near London.

Sp. 5. Euphorbiae. (Spotted elephant.)

Sphinx euphorbiae. Gmelin, Fabricius, Latreille.

Inhabits Europe. It is very rare in Britain. The larva has occurred near Plymouth.

Sp. 6. Pinastris. (Pine hawk-moth.)

Sphinx pinastris. Fabricius, Gmelin.

Inhabits Europe. It has been taken near London, and in Ra:clston wood near Edinburgh.

Sp. 7. Convolvuli. (Convolvulus hawk-moth.)

Sphinx convolvuli. Linn. Fabricius, Latreille.

Inhabits Europe. It has been taken in the most remote parts of Great Britain, even in the Shetland Islands, but does not make a regular appearance.

Sp. 8. Ligustri. (Privet hawk-moth.)

Sphinx ligustri. Fabricius, Gmelin.

Inhabits Europe. The larva feeds on the privet and ash.

Sp. 9. Atropos. (Death's head hawk-moth.)

Sphinx atropos. Linn. Gmelin, Fabricius, Latr.

Spectrum atropos. Scopoli.

Inhabits Europe. It must be considered as a valuable acquisition to the British cabinet, for although it be very common in the caterpillar state, yet it is bred with extreme difficulty; and the fly when taken on the wing is generally very much mutilated and rubbed. The caterpillar occurs in potatoe fields, and is said also to feed on the jasmine leaves.

The death's head hawk-moth is distinguished by a remarkable spot on its thorax, bearing a slight resemblance to a skull. From this circumstance, and that of its uttering a sharp sound when handled, it has been considered, by the vulgar, as an animal of ill omen, and as a messenger of fate. The members of a female convent, (as we learn from Reaumur,) were thrown into great consternation on discovering one of these insects, which had accidentally flown in at one of the open windows during the evening.

GENUS CCCCXXXIII. *SESIA.* Fabricius.

SPHINX. Linn. Latreille.

MACROGLOSSUM. Scopoli.

Palpi contiguous above the tongue. Tongue very long, distinct and convoluted. Antennæ prismatic, thicker towards their middle, (of the males ciliated.) Abdomen with the anus tufted.

* Wings opaque.

Sp. 1. Stellatarum. (Humming-bird hawk-moth.)

Sphinx stellatarum. Linn. Gmelin, Latreille.

Sesia stellatarum. Fabricius.

Macroglossum stellatarum. Scopoli.

Inhabits Europe. The perfect insect feeds, in the wing, on the honey of stellated plants.

** Wings transparent.

Sp. 2. Bombyciformis. (Narrow bordered bee-hawk-moth.)

Sphinx fusiformis. Linn.

Sesia bombyciformis. Fabricius.

Inhabits Europe, on the borders of woods.

Sp. 3. Fusiformis. (Broad-bordered bee-hawk-moth.)

Sesia fusiformis. Fabricius.

Sphinx fusiformis. Gmelin.

Inhabits Europe, on the borders of woods.

TRIBE ZYGÆNIDÆ.

Palpi long, separate, covered with long scales, or projected hair.

GENUS CCCCXXXIV. *ÆGERIA.* Fabricius.

Sesia. Latreille, Laspeyres.

TROCHILUM. Scopoli.

Antennæ fusiform. Abdomen with the anus bearded.

Sp. 1. Apiformis. (Bee hornet-sphinx.)

Sesia apiformis. Latreille.

Ægeria apiformis. Fabricius.

Trochilum apiforme. Scopoli.

Sphinx apiformis. Linn.

Inhabits Europe.

Sp. 2. Craboniformis. (Hornet-sphinx.)

Sesia craboniformis. Fabricius.

Inhabits Europe.

Sp. 3. Vespiiformis. (Wasp hornet-sphinx.)

Sphinx chrysorrhea. Donovan.

Inhabits Europe.

Obs. There are several other species of this genus found in Britain, but their synonyms have never been satisfactorily ascertained. We may add one more, viz.

Sp. 4. Tiphuliformis. (Currant hornet-sphinx.)

Sphinx tiphuliformis. Gmelin.

Sesia tiphuliformis. Latreille.

Inhabits gardens. The larvæ perforate and destroy the currant bushes, and where they are plenty produce a serious mischief.

GENUS CCCCXXXV. *ZYGÆNA.* Fabricius.

SPHINX. Linn.

Antennæ abruptly flexuous-clavate. Palpi cylindric, conic.

Sp. 1. Filiphendulæ. (Six-spot burnet.)

Sphinx filiphendulæ. Linn.

Zygæna filiphendulæ. Fabricius, Latreille.

Inhabits fields.

Obs. There is another species, having but five red spots on the anterior wings, which is distinct, and is generally referred to the *Zygæna loti* of Fabricius.

GENUS CCCCXXXVI. *INO.* Leach.

PROCRIS. Fabricius, Latreille.

ZYGÆNA. Panzer, Walckenaer.

SPHINX. Linn.

Antennæ of the male bipectinate, of female simple. Palpi short.

Sp. 1. Statices. (Forrester.)

Sphinx statices. Linn.

Zygæna statices. Rossi, Panzer.

Procris statices. Fabricius, Latreille.

Ino statices. Leach.

Inhabits the margins of woods in meadows.

SECTION III. NOCTURNA.

Wings horizontal at repose. Antennæ setaceous, gradually narrowing towards their extremities.

TRIBE I. BOMBYCIDÆ.

Antennæ of the male at least serrated. Tongue none. Palpi two, short, cylindric, very hairy. Thorax not crested. Wings undivided.

FAMILY I. *Cossida.*

Antennæ with a single series of ciliæ. Wings elongate.

Obs. The larvæ of this family generally live on the solid wood of trees, which they perforate in every direction. Sides of the chrysalis denticulated.

GENUS CCCCXXXVII. *HEPIALUS.* Fabr. Latr.

PHALÆNA (Noctua). Linn.

Antennæ moniliform, shorter than the thorax. Palpi very small, and very hairy. Wings elliptic, equal, long.

Sf. 1. Humuli. (Ghost-swift.)
Noctua humuli. Linn.
Hepialus humuli. Fabricius, Latreille.
Inhabits fields.

Sp. 2. Mappa. (Map-wing swift.)
Phalena mappa. Donovan.
Inhabits Britain. Has been taken near Dunstar castle, in Somerset, by Mr G. Sowerby. It may be synonymous with *Bombyx velleda* of Hübner.

Sp. 3. Hectus. (Golden swift.)
Phalena noctua hecta. Gmelin.
Hepialus hectus. Fabricius.
Inhabits Europe.

Obs. We have in Britain several other species, but their characters are evanescent, and their names have never been determined with accuracy.

GENUS CCCCXXXVIII. *Cossus.* Fabricius, Latreille, Cuvier.

PHALÆNA BOMBYX. Linn.
Antennæ as long as the thorax, setaceous, furnished with a single series of short transverse obtuse teeth. Palpi very distinct, thick, cylindric, and squamous. Anterior wings larger than the posterior.

Sp. 1. Lignitherda. (Goat-moth.)
Phalæna (Bombyx) Cossus. Linn.
Cossus lignitherda. Fabricius, Latreille.

Inhabits Europe. The larva feeds on the internal parts of the willow and ash. The celebrated Lyonett has immortalized himself by his laborious work on the anatomy of the larva, and perfect insect. The caterpillar diffuses a scent, by which its residence may frequently be made known to those passing such trees as are much infested by it. It remains three years in this state, when it spins a strong web, intermixed with particles of wood, and changes into the chrysalis, which it does in the month of May, and in June the perfect insect starts into existence.

GENUS CCCCXXXIX. *Zeuzera.* Latreille.
BOMBYX. Hübner.
HEPIALUS. Schrank.
PHALÆNA, (NOCTUA.) Linn.
Cossus. Fabricius.

Antennæ setaceous, (in the male pectinated to the middle.)

Sp. 1. Æsculi. (Wood-leopard moth.)
Cossus æsculi. Fabricius.
Bombyx æsculi. Hübner.
Zeuzera æsculi. Latreille.
Phalæna æsculi. Linn.

Inhabits Europe. In England it is rather rare, but may be found in St James's Park, in July, if industriously sought after.

FAMILY II. *Bombycida.*

Antennæ of the males with a double series of pectinations.

Obs. The larvæ of this family live on the leaves of trees. Sides of the chrysalis not serrated or denticulated.

GENUS CCCCXL. *Saturnia.* Schrank.
PHALÆNA, (ATTACUS.) Linn.
BOMBYX. Fabricius, Hübner, Latreille.

Wings horizontal. Antennæ with the second joint (in the male) bidentate. Caterpillar naked, elongate, with the anal feet distinct, and resembling the middle ones.

Sp. 1. Pavonia minor. (Emperor moth.)
Phalæna attacus pavonia minor. Linn.
Bombyx pavonia minor. Fabricius.

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Inhabits Europe.
GENUS CCCCXLI. *Lastocampa.* Schrank.
BOMBYX. Fabricius, Latreille.

Superior wings deflexed; inferior ones reversed. Antennæ of the male very much pectinated. Palpi not produced into a rostrum. Caterpillar naked, elongate, with the anal feet distinct, and resembling the middle ones.

Sp. 1. Quercus. (The egger moth.)
Phalæna bombyx quercus. Linn.
Bombyx quercus. Fabricius, Latreille.

Inhabits Europe. The larva feeds on the bramble.
Obs. The following indigenous species of Fabrician *Bombyx* are referable to this genus, viz. 2. *Trifolii*; 3. *Rubi*; 4. *Cratægi*; 5. *Neustria*; 5. *Populi*; 7. *Lancestris*. The four last are distinguished by their palpi, being more hairy than the rest, and may be considered as forming a subdivision.

GENUS CCCCXLII. *Bombyx.* Fabr. Latr. Schrank.
Superior wings deflexed, inferior ones reversed. Antennæ of the male very much pectinated. Palpi produced into a rostrum. Caterpillar naked, with the anal feet like the middle ones distinct.

Sp. 3. Quercifolia. (lappet moth.)
Phalæna bombyx quercifolia. Linn.
Bombyx quercifolia. Fabr. Latr.
Inhabits Europe.

Obs. The following indigenous *Bombyces* of Fabricius belong to this genus, viz. 2. *Potatoria*; 3. *Pini*.

GENUS CCCCXLIII. *Laria.* Schrank.
PHALÆNA (BOMBYX.) Linnæus.
BOMBYX. Latreille, Fabricius.

Wings deflexed, the under ones entirely covered by the upper ones. Antennæ of the male much pectinated, or much ciliated. Caterpillar naked; the hinder feet distinct like the middle ones.

Sp. 1. Dispar. (gipsy moth.)
Phalæna dispar. Linnæus.
Bombyx dispar. Fabricius.
Inhabits Europe.

Obs. This genus requires examination. The following species are found in Britain: 2. *Monacha*, (black arches); 3. *Fascetina*, (scarce tussock); 4. *Pudibunda*, (common tussock); 5. *Rectusa*, (small chocolate-tip); 6. *Curtula*? (large chocolate-tip); 7. *Roboris*; 8. *Trimacula*, (Donovan); 9. *Cæruleocephala*, (figure of eight); 10/ *Coryli*, (nut-tree tussock); 11. *Ziczac*, (pebble prominent); 12. *Dromedarius*, (iron prominent); 13. *Bucephala*, (bust-tip); 14. *Tritophus*, (aspens prominent); 15. *Trepida*, (swallow prominent); with a few other species whose names are not yet determined. *Bombyx viscolora* of Fabricius, (the Kentish glory,) forms a peculiar genus, viz. *Dorvillia*. Leach.

GENUS CCCCXLIV. *Cerura.* Schrank.
BOMBYX. Fabricius, Latreille.

PHALÆNA, (BOMBYX.) Linnæus.
Antennæ in both sexes pectinated, and gradually acuminate. Caterpillar, with the anal feet transformed into a furcate tail.

Sp. 1. Vinula. (puss moth.)
Phalæna bombyx vinula. Linnæus.
Bombyx vinula. Fabricius, Latreille.
Cerura vinula. Schrank.

Inhabits Europe. The larva feeds in willows and poplars.

Sp. 2. Furcula. (kitten moth.)
Bombyx furcula. Latreille, Fabricius.
Inhabits Europe; not common in Britain.

TRIBE II. ARCTIDES.

Noctuo-Bombyctes. Latreille.

Palpi two. Antennæ pectinated, or ciliated. Tongue visible, but often short, and somewhat membranaceous. Wings trigonate, deflexed, undivided. Caterpillar with sixteen feet.

GENUS CCCXLV. ARCTIA. Schrank, Latreille.

BOMBYX. Fabricius.

Palpi with long scales. Antennæ of the males (at least) with a double series of pectinations. Tongue often short, composed of two separate filaments.

* Antennæ ciliated.

Sp. 1. *Villica*, (cream spot tyger).

Bombyx villica. Fabricius.

Inhabits Europe.

Obs. The other indigenous species of this division, are, 2. *Caja*, (tyger moth); 3. *Plantaginis*; 4. *Russula*, (clouded buff); 5. *Mendica*, (muslin); 6. *Methrastris*, (ermine); 7. *Papyritia*, (water ermine); 8. *Lubricipeda*, (buff ermine).

** Antennæ pectinated.

Sp. 1. *Salicis*, (satin moth).

Arctia salicis. Latreille.

Inhabits Europe. The larva on willows and poplars.

Sp. 2. *Chrysorrhæa*, (golden tail moth).

Bombyx chrysorrhæa. Fabricius.

Inhabits Europe.

Sp. 3. *Phaorrhæa*, (brown tail moth).

Bombyx phaorrhæa. Haworth.

Bombyx chrysorrhæa. Hübner.

Inhabits Europe. This is the species whose larva commits such destruction amongst white thorn hedges, as mentioned in our history of entomological dissertations.

GENUS CCCXLVI. CALLIMORPHA. Latreille.

BOMBYX. Fabricius.

LOTHOSIA. Fabricius.

Palpi with short, not porrect scales. Antennæ simple, or slightly ciliated. Tongue long, the two filaments conjoined.

Sp. 1. *Dominula*, (scarlet tyger moth).

Bombyx dominula. Fabricius.

Callimorpha dominula. Latreille.

Inhabits Europe.

Obs. *Bombyx*, 2. *Rosca* (red arches); 3. *Jacobeæ*, (cinabar); are referable to this genus.

TRIBE III. TINEIDES.

Antennæ setaceous, simple. Tongue distinct. Palpi two, cylindric. Wings long, oblong, somewhat elliptic, incumbent or convolute, inferior ones much folded, all undivided.

FAMILY I. TINEIDA.

Antennæ distant from each other. Eyes separate, divided by a frontlet.

DIVISION I.

Tongue distinct, elongate. Front not very hairy.

GENUS CCCXLVII. LITHOSIA. Fabr. Latr.

Wings horizontal. Palpi shorter than the head, last joint cylindric, distinctly shorter than the second. Back much flattened. Antennæ simple, or but slightly ciliated.

Sp. 1. *Quadra*, (four-spotted footman).

Phalena quadra. Linn.

Lithosia quadra. Fabricius, Latreille.

Inhabits Europe.

The other indigenous species are, 2. *Complanata*; 3.

Rubricollis; 4. *Irrorata*; with three species not yet ascertained.

GENUS CCCXLVIII. YPONOMEUTA. Latreille.

PHALENA, (TINEA). Linnæus.

TINEA. Fabricius, Hübner.

Wings rolled, or convoluted. Palpi as long as the head, the third joint obconic, as long or longer than the one before it. Antennæ simple.

Sp. 1. *Evonymella*.

Phalena evonymella. Linnæus.

Tinea evonymella. Fabricius.

Yponomeuta evonymella. Latreille.

Inhabits Europe.

GENUS CCCXLIX. NEMAPOGON. Schrank.

PHALENA (TINEA). Linnæus.

TINEA. Fabricius.

ALUCITA. Olivier.

ECOPHORA. Latreille.

Wings broadly fringed, lying on the back. Palpi twice as long or more than the body; the second joint longer than the head, the last joint almost naked, recurved beyond the head.

Obs. To this genus *Tinea*, 1. *Linneella*; 2. *Flavella*; 3. *Rosella*, and their congeners, belong.

DIVISION II.

Tongue not distinct, very short. Front very hairy.

GENUS CCCC. EUPLOCAMUS. Latreille.

TINEA. Fabricius.

PYRALIS. Hübner.

Palpi two; the second joint with numerous elongate scales, the third joint naked and ascending. Antennæ much pectinated.

Sp. 1. *Guttella*.

Tinea Guttella. Fabricius.

Euplocamus guttellus. Latr.

Inhabits Europe.

GENUS CCCCII. TINEA. Latr. Fabr. Hübner.

PHALENA (TINEA). Linnæus.

Palpi four, distinct, upper ones small, inflexed. Antennæ simple, or slightly ciliated.

Sp. 1. *Pelionella*, (cloth's moth).

Tinea pelionella. Fabr. Latr.

Phalena tinea pelionella. Linnæus.

Inhabits houses.

Obs. All the cloth moths, of which there are several species, belong to this genus.

FAMILY II. NEMOPHORIDA.

Antennæ inserted very near to each other. Eyes nearly meeting behind.

GENUS CCCCIII. NEMOPHORA. Hoffmannsegg.

ADELA. Latreille.

NEMAPOGON. Schrank.

ALUCITA. Fabricius.

TINEA. Hübner.

PHALENA (TINEA). Linnæus.

Sp. 1. *Degeerella*, (Japan moth).

Phalena tinea Degeerella. Gmelin.

Adela Degeerella. Latreille.

Inhabits the borders of woods.

Obs. All the long-horned Japan moths, as they are called by English collectors, belong to this genus.

TRIBE IV. NOCTUIDES.

Antennæ setaceous, in the males sometimes pectinated or ciliated. Tongue distinct. Palpi much compressed. Wings horizontal or incumbent, not divided. Thorax thick, often crested.

FAMILY I. *Erebida*.

Palpi with the last joint as long or longer than the preceding.

GENUS CCCCLIII. *EREBUS*. Latreille.

NOCTUA. Fabricius.

Wings expanded.

Sp. 1. *Odonus*.

Noctua odora. Fabricius.

Erebus odoros. Latreille.

FAMILY II. *Noctuida*.

Palpi with the last joint much shorter than the preceding, squamous.

GENUS CCCCLIV. *NOCTUA*. Fabr. Latr. Hübner.

BOMBYX. Fabricius, Hübner.

PHALÆNA (BOMBYX). Linnæus.

PHALÆNA (Noctua). Linnæus.

PÆCILLIA. Schrank.

CUCULLIA. Schrank.

Obs. The genus *Noctua* requires a minute investigation. It contains several very natural genera, as exhibited in the following divisions:

A. Caterpillar with sixteen feet.

* Caterpillars half-loopers, their anterior feet membranaceous, evidently shorter than the others.

Wings horizontal.

Sp. 1. *Frazini*, (clifden nonpareil).

Noctua frazini. Fabricius, Latreille.

Sp. 2. *Sponsa*, (crimson underwing).

Noctua sponsa. Fabricius, Latreille.

To this Section *Noctua*; 3. *Nupta*; 4. *Promissa*; 5. *Pacta*; 6. *Maura*, &c. belong.

** Caterpillars with membranaceous feet of conformable size.

1. Wings horizontal.

Sp. 1. *Fimbria*, (broad bordered yellow underwing moth.)

Noctua fimbria. Fabricius.

Sp. 2. *Pronuba*, (yellow underwing); 3. *Orbona*; 4. *Janthina*, &c.

2. Wings deflexed.

a. Sp. 1. *Rumicis*, (common knot grass moth); 2. *Psi*, (dagger moth), &c.

b. Sp. 1. *Ligustri*, (coronet); 2. *Pisi*, (broom moth), &c.

c. Sp. 1. *Verbasci*; 2. *Tanacetii*, &c.

d. Sp. 1. *Batis*, (peach blossom moth).

e. Sp. 1. *Meticulosa*, (angle shades).

f. Sp. 1. *Palpina*, (pale prominent moth).

g. Sp. 1. *Camelina*.

B. Caterpillar with fourteen feet.

Sp. 1. *Chrysitis*, (burnished brass moth); 2. *Festuca*, (gold spot moth), &c.

TRIBE V. PHALENIDES.

Antennæ approximating at their base; those of the male often pectinated or ciliated. Clypeus scarcely prominent. Feet slender, rarely hairy. Palpi two. Wings undivided.

FAMILY I. *Phalenida*.

Larva with twelve feet.

GENUS CCCCLV. *PHALÆNA*. Linnæus, Fabricius, Latreille, Leach.

GEOMETRA. Haworth, Hübner.

Antennæ of the male pectinated.

Sp. 1. *Margaritaria*, (large emerald moth), &c.

FAMILY II. *Geometrida*.

Larva with ten feet.

GENUS CCCCLVI. *BISTON*. Leach.

PHALÆNA. Linnæus, Fabricius, Latreille.

GEOMETRA. Hübner, Haworth.

Antennæ of the male much pectinated. Body thick. Palpi very hairy.

Sp. 1. *Prodromaria*; 2. *Betularia*; 3. *Hirtaria*.

GENUS CCCCLVII. *GEOMETRA*. Hübner, Haworth.

PHALÆNA. Fabricius, Latreille, Linnæus.

Antennæ of the male pectinated. Body slender. Palpi but little or not at all hairy. Wings horizontally extended, hinder margin very angular.

Sp. 1. *Lunaria*; 2. *Dolabraria*, &c.

GENUS CCCCLVIII. *OURAPTERYX*. Leach.

PHALÆNA. Latreille, Fabricius, Linnæus.

Antennæ somewhat ciliated. Body slender. Palpi but little hairy. Wings horizontally extended, inferior ones prolonged, truncate, and terminated by a tail.

Sp. 1. *Sambucaria*, (swallow-tail moth).

Inhabits Europe.

GENUS CCCCLIX. *ABRAXAS*. Leach.

PHALÆNA. Linnæus, Fabricius, Latreille, Hübner, Haworth.

Antennæ simple, not ciliated. Body slender. Palpi scarcely hirsute. Wings extended horizontally, not angulated or indented.

Sp. 1. *Grossulariata*, (common magpie moth); 2. *Ulmaria*, (scarce magpie moth), &c.

GENUS CCCCLX. *BUPALUS*. Leach.

PHALÆNA. Linnæus, Fabricius, Latreille.

GEOMETRA. Hübner, Haworth.

Antennæ pectinated in the male. Body slender. Palpi slightly hirsute. Wings horizontally extended, not angulated or indented.

Sp. 1. *Piniaria*.

Phalæna piniaria. Fabricius, Latreille.

Inhabits pine woods.

GENUS CCCCLXI. *HIPPARCHUS*. Leach.

PHALÆNA. Fabr. Latr. Linn.

GEOMETRA. Hübner, Haworth.

Wings extended obliquely, the upper covering the lower ones. Body slender. Palpi slightly hirsute. Antennæ of the male pectinated.

Sp. 1. *Papilionaria*; 2. *Prunata*, &c.

FAMILY III. *Herminida*.

Caterpillars with fourteen feet, the anal ones distinct, the first pair of membranaceous ones wanting.

GENUS CCCCLXII. *HERMINIA*. Latreille.

PHALÆNA (PYRALIS). Linnæus.

CRAMBUS. Fabricius, Bosc.

PYRALIS. Hübner.

Wings triangulate, nearly horizontal, anterior margin of the upper wings straight. Palpi two recurved, compressed, often very large. Antennæ ciliated.

Sp. 1. *Proboscoidalis*, &c.

FAMILY IV. *Platypterica*.

Caterpillar with fourteen feet, anal ones wanting, the first pair of membranaceous ones distinct.

GENUS CCCCLXIII. *PLATYPTERYX*. Laspeyeres, Lat.

PHALÆNA. Fabricius.

Anterior wings fulcate. Antennæ of the male pectinate. Palpi very short, somewhat conic. Tongue short.

Sp. 1. *Falcataria*; 2. *Lacertanaria*; 3. *Cultaria*.

Obs. The two last species have their anterior wings dentate.

GENUS CCCCLXIV. CILIX. Leach.

BOMBYX. Fabricius.

PLATYPTERYX. Latreille.

Anterior wings rounded. Antennæ of the male pectinated. Palpi very short, somewhat conic. Tongue none.

Sp. 1. Compressa, (goose egg moth).

Bombyx compressus. Fabricius.

Platypteryx compressa. Latreille.

Cilix compressa. Leach.

FAMILY V. Tortricida.

Caterpillars with sixteen feet. Wings, with the body forming a broad short triangle, dilated on each side anteriorly.

GENUS CCCCLXV. TORTRIX. Hübner.

PHALÆNA (TORTRIX). Linnæus.

PYRALIS. Latreille, Fabricius.

Palpi with the second joint distinctly longer than the third, and more squamous; third joint short, truncate or obtuse, not recurved over the head.

Sp. 1. Pagana; 2. *Chlorana*; 3. *Pomana*, &c.

GENUS CCCCLXVI. SIMAETHIS. Leach.

TORTRIX. Hübner.

PYRALIS. Latreille.

Palpi short, rising, the last joint not recurved over the head; with the second and third joints nearly equally long and equally squamose. Inferior wings not completely covered by the upper ones.

Sp. 1. Dentata.

Tortrix dentata. Hübner.

Pyralis dentata. Latreille.

Simaethes dentata. Leach.

Inhabits Europe.

GENUS CCCCLXVII. NOLA. Leach.

PYRALIS. Hübner, Latreille.

Palpi short, perfect; last joint not recurved over the head; the second and third joints nearly equally long and equally squamose. Under wings completely covered by the upper ones.

Sp. 1. Palliolatis.

Pyralis palliolatis. Hübner, Latr.

Nola palliolatis. Leach.

Inhabits Europe.

TRIBE VI. PYRALIDES.

Palpi four. Larva (as far as has been ascertained) with sixteen feet.

FAMILY I. Pyralida.

Superior wings forming with the body a nearly horizontal depressed triangle.

GENUS CCCCLXVIII. BOTYS. Latr.

PHALÆNA (PYRALIS). Linn.

PYRALIS. Hübner, Schrank, Scopoli.

NYMPHALA. Schrank.

SCOPULA. Schrank.

PYRAUSTA. Schrank.

CRAMBUS. Fabricius.

Tongue distinct, conspicuous. Palpi exerted.

Sp. 1. Purpuraria. 2. *Potamogata*. 3. *Verticalis*. 4. *Lemnata*, &c.

GENUS CCCCLXIX. PYRALIS. Hübner, Schrank, Schiffmüller.

PHALÆNA (PYRALIS). Linn.

CRAMBUS. Fabricius.

AGLOSSA. Latreille.

Tongue none. Inferior palpi largest, the second joint very squamous, the squamæ porrected in bundles.

Sp. 1. Pinguinalis.

Phalæna pyralis pinguinalis. Linn.

Crambus pinguinalis. Fabricius.

Aglossa pinguinalis. Latreille.

Inhabits Europe.

FAMILY II. Tineida.

Superior wings very long, enveloping the sides of the body.

GENUS CCCCLXX. GALLERIA. Fabricius, Latr.

PHALÆNA (TINEA). Linn.

Tongue very short. Palpi short: Inferior palpi largest, with close scales; upper ones concealed by the scales of the clypeus. Wings narrow, covering and pressing against the sides of the body.

Sp. 1. Alvearia.

Galleria alvearia. Fabricius, Latr.

GENUS CCCCLXXI. CRAMBUS. Fabr. Latr.

PHALÆNA (TINEA). Linn.

TINEA. Geoffroy.

Wings narrow, convoluted round the body. Palpi exerted, inferior ones largest. Head with short closely applied scales. Tongue distinct.

Sp. 1. Pinetti. 2. *Pascuorum*. 3. *Pratorum*, &c.

GENUS CCCCLXXII. TINEA. Hübner, Geoffroy, Scopoli.

ALUCITA. Latreille.

PHALÆNA (TINEA). Linn.

YSOLOPHUS. Fabricius.

Wings narrow, abruptly deflexed, behind and above ascending. Inferior palpi with the second joint covered with numerous fasciculi of scales; the last erect, conic, naked. Head with a bifid crest in front.

Sp. 1. Nemorum. 2. *Vittatus*, &c.

TRIBE VII. ALUCITIDES.

PTEROPHORITES. Latreille.

Wings divided, or formed of feathers united at their base.

GENUS CCCCLXXIII. PTEROPHORUS. Geoffroy, Latreille, Fabricius.

ALUCITA. Hübner, Schrank, Scopoli.

PHALÆNA (ALUCITA). Linn.

Palpi small, from their base ascending, not longer than the head, shortly and nearly equally squamose. Anterior wings composed of two, posterior of three feathers. Pupa naked, suspended by a hair.

Sp. 1. Pentadactylus. 2. *Didactylus*, &c.

GENUS CCCCLXXIV. ALUCITA. Hübner, Scopoli.

PTEROPHORUS. Geoffroy, Fabricius.

PHALÆNA (ALUCITA). Linn. Villers.

ORNEODES. Latreille.

Palpi produced much longer than the head; the second joint very squamous; the last joint naked, erect. Pupa folliculate.

Sp. 1. Hexadactyla.

Orneodes hexadactylus. Latreille.

Pterophorus hexadactylus. Fabricius.

Phalæna alucita hexadactyla. Linn.

Alucita hexadactyla. Hübner.

Inhabits Europe, often entering houses.

ORDER XII. TRICHOPTERA.

ORDER TRICHOPTERA. Kirby.

ORDER NEUROPTERA. Linn. Cuvier, Latr. Lam.

Characters of the Order.

Wings much deflexed, with strong nervures, hispid or hairy, the lower wings plicate. Antennæ inserted between the eyes, often very long, composed of an infinity of joints. Feet elongate, spinulose. Tarsi elongate, five-jointed; the last joint with two small nails.

Larva elongate, agile, somewhat cylindric, composed of twelve joints, the three first harder than the rest, and each bearing a pair of feet; the last segment with two hooked processes. It inhabits tubes constructed of sand, bits of wood, stone, or grass, glued together by a cement impenetrable to water.

Pupa somewhat resembling the perfect insect, shut up in the tube it lived in whilst a larva, but having the power of motion prior to its emerging from the water (in which it resides), for the purpose of changing into the fly-state.

GENUS I. PHRYGANEÆ. Linn. Fabr. Geoff. Latreille.

Obs. This genus Dr Leach has divided into several genera, from the proportion of the antennæ and palpi. We shall give as many examples as we can; but we must refer to a work which he is about to publish, entitled *Trichoptera Systematica*, for a more particular account, and for the characters of these genera, and of others named, 1. *Ceraclea*, 2. *Göera*, 3. *Potomaria*, 4. *Prosoptionia*, 5. *Chimarra*, 6. *Tinodes*, 7. *Philopotamus*, and 8. *Neuronia*.

TRIBE I. LEPTOCERIDES.

Antennæ much longer than the whole body.

GENUS CCCLXXXV. LEPTOCERUS. Leach's MSS. Antennæ simple, not denticulated.

Sp. 1. *Interruptus*.

Phryganea interrupta. Fabricius.

Leptocerus interruptus. Leach's MSS.

Inhabits Great Britain. It is found in great plenty near Luss, on the banks of Loch Lomond, on the margins of rivulets at Dreghorn near Edinburgh, and near Carlisle in northern England. It occurs during the day time on the smaller branches of trees, and in the afternoon flies about in great abundance, in flocks.

GENUS CCCLXXXVI. ODONTOCERUM. Leach's MSS.

Antennæ with their inner edge denticulated.

Sp. 1. *Griseum*.

Odontocerus griseum. Leach's MSS.

Inhabits Ireland and England. It is common at Dunlough Gap, near Killarny; and near Carlisle, on the banks of the Eden river. It has likewise been taken in Norfolk, by Mr Scales, near Cheltenham, and near Plymouth, by Dr Leach.

TRIBE II. PHRYGANIDES.

Antennæ as long as the body.

GENUS CCCLXXXVII. PHRYGANEÆ. Leach's MSS. Anterior wings soft, villose.

Sp. 1. *Grandis*.

Phryganea grandis. Linn. Fabr. Latr.

Inhabits Europe.

GENUS CCCLXXXVIII. LIMNEPHILUS. Leach's MSS.

Anterior wings slightly coriaceous, nervures hispid or hairy.

Sp. 1. *Rhombicus*.

Phryganea rhombica. Linn.

Limnephilus rhombicus. Leach's MSS.

Inhabits Europe.

ORDER XIII. NEUROPTERA.

Order NEUROPTERA. Linn. Latr. Lam. Cuvier.

Class ODONATA. Fabricius.

Class SYNISTATA Fabricius.

Wings four, naked, reticulated, and divided into a vast number of areolæ.

SECT I. SUBULICORNES.

Antennæ subulate, very short, the last joint setiform. Maxillary palpi very short. Wings extended horizontally, or erect, very much reticulated.

METAMORPHOSIS semicomplete.

LARVÆ and PUPÆ aquatic, somewhat resembling the perfect insect.

TRIBE I. LIBELLULIDES.

Tarsi three-jointed. Mandibles strong, corneous. Maxillæ corneous, strong. Wings equal, or the hinder ones a little larger at their base. Abdomen not terminated with setæ or filaments. Eyes very large.

FAMILY I. Libellulida.

Wings horizontal. Head hemispheric, with a distinct vesicle, on which the little eyes are placed in a triangle, Abdomen more or less depressed. Lip with the middle lamella smallest.

GENUS CCCCLXXXIX. LIBELLULA. Linn. Fabricius, Latreille, Leach.

Posterior wings alike in both sexes.

Sp. 1. *Defressa*.

Libellula defressa. Linn. Fabr. Latr.

Sp. 2. *Conshurecata*.

Libellula conshurecata. Fabr. Sowerby.

Libellula quadrifusciata. Donovan.

Sp. 3. *Quadrinaculata*.

Libellula quadrinaculata. Linn. Fabr. Donovan.

Sp. 4. *Cancellata*.

Libellula cancellata. Linn. Donovan.

Inhabits Europe. Is common on the Croydon Canal, near London.

Sp. 5. *Vulgata*.

Libellula vulgata. Linn. Fabr. Donovan.

Sp. 6. *Donovani*.

Libellula Donovani. Leach.

Libellula biguttata. Donovan.

Sp. 7. *Scotica*.

Libellula Scotica. Leach, Donovan.

GENUS CCCCLXXX. CORDULIA. Leach's MSS.

LIBELLULA. Linn. Donovan, Panzer, Latreille.

Posterior wings in the male produced into an angle at the anal edge.

Sp. 1. *Anea*.

Libellula anea. Linn. Donovan, Panzer, Latreille.

Cordulia anea. Leach's MSS.

FAMILY II. Eshnides.

Wings horizontal. Head hemispheric, without a distinct vesicle for the little eyes, which are arranged in a straight line. Abdomen cylindric, sometimes clavate. Lip with the middle lamella not much smaller than the others.

GENUS CCCCLXXXI. CORDULEGASTER. Leach's MSS.

LIBELLULA. Linn. Donovan.

ESHNA. Latreille.

Hinder wings of the male angulated at their anal

edge. Abdomen of the male clavate, of the female with an acuminate process.

Sp. 1. Annulatus.

Libellula forcipata. Harris.

Æshna annulata. Latreille.

Libellula Boltonii. Donovan.

Cordulegaster annulatus. Leach's MSS.

Inhabits Yorkshire, Devonshire, Dorsetshire, Somersetshire, and Cornwall. It likewise occurs amongst the lakes, in the north of England; amongst the Pentland hills, near Edinburgh; and on Loch Lomond and Loch Katrine.

GENUS CCCCLXXXII. GOMPHUS. Leach's MSS.

LIBELLULA. Linn. Donovan.

Wings of the male angulated at their anal edge. Abdomen clavate in both sexes.

Sp. 1. Vulgatissimus.

Libellula vulgatissima. Linn.

Libellula forcipata. Donovan.

Gomphus vulgatissimus. Leach's MSS.

Inhabits Europe. Is occasionally taken near London.

GENUS CCCCLXXXIII. ÆSHNA. Fabricius.

LIBELLULA. Linn. Donovan.

Hinder wings of the male angulated at their anal edge. Abdomen cylindric in both sexes, not clavate.

Sp. 1. Grandis.

Libellula grandis. Linn. Donovan.

Æshna grandis. Fabricius.

Inhabits Europe.

Obs. There are several European species, which have been confounded with *Æshna grandis*.

GENUS CCCCLXXXIV. ANAX. Leach's MSS.

Hinder wings of the male not angulated at their anal edge, but resembling those of the female. Abdomen cylindric in both sexes; not clavate.

Sp. 1. Imperator.

Inhabits England.

FAMILY III. Agrionida.

Wings erect. Head transverse. Abdomen cylindric-linear. Ocelli, or little eyes, placed in a triangle.

GENUS CCCCLXXXV. AGRION. Fabr. Latreille.

LIBELLULA. Linn.

Wings membranaceous, with a rhomboidal stigma. Abdomen of the male not armed with a forceps-like appendage.

Obs. We have of this genus several indigenous species, not accurately determined.

GENUS CCCCLXXXVI. LESTES. Leach.

Wings membranaceous, with an oblong quadrate stigma. Abdomen of the male armed with a forceps-like appendage.

Obs. We have three indigenous species.

GENUS CCCCLXXXVII. CALEPTERYX. Leach's MSS.

AGRION. Fabricius, Latreille.

Wings coriaceo-membranaceous, without a real stigma, in place of which is sometimes an irregular opaque spot. Abdomen of the male furnished with a forceps-like appendage.

Obs. This genus comprehends those *Agrionida* with coloured wings.

TRIBE II. EPHEMERIDES.

Tarsi four-jointed. Mouth not distinct. Inferior wings much smaller than the others, sometimes wanting. Abdomen with the extremity furnished with filaments.

METAMORPHOSIS quadruple.

FAMILY I. Bætida.

Tail with two filaments.

GENUS CCCCLXXXVIII. BÆTIS. Leach's MSS.

EPHEMERA. Linn. Fabricius, Latreille.

Wings four.

Sp. 1. Bioculatus.

Ephemerella bioculata. Linn. Fabr.

Bætis bioculatus. Leach's MSS.

Inhabits Europe.

GENUS CCCCLXXXIX. CLOEON. Leach.

EPHEMERA. Linn. Fabricius.

Wings two.

Sp. 1. Pallida.

Ephemerella diptera. Linn. Fabr.

Cloeon pallida. Leach's MSS.

FAMILY II. Ephemerida.

Tail with three filaments.

GENUS CCCXC. EPHEMERA. Linn. Fabr. Latr. Leach.

Sp. 1. Vulgata.

Ephemerella vulgata. Linn. Fabr.

Inhabits Europe.

SECT. II. FILICORNES.

Antennæ longer than the head; not subulate. Wings generally deflexed, or incumbent.

TRIBE I. PANORPIDES.

Head anteriorly produced into a rostrum.

FAMILY I. Physafida.

Wings extended, unequal, anterior ones somewhat triangulate-rounded, the hinder ones very long, linear. Ocelli none.

GENUS CCCXCII. PHYSAPUS.

PANORPA. Linn. Fabricius.

NEMOPTERA. Latreille.

Sp. 1. Coa.

Panorpha coa. Linn. Fabr.

Nemoptera coa. Latreille.

Inhabits Portugal, Spain, and the islands of the Archipelago.

FAMILY II. Panorpidæ.

Wings equal, ovate-elliptic, laying one over the other. Ocelli three, approximate, arranged in a triangle.

GENUS CCCXCIII. PANORPA. Linn. Fabr. Lam. Latr.

Tarsi with two bent claws, denticulated beneath, having a spongy pulvillus between them. Palpi nearly equal, filiform; the last joint cylindric-ovate. Mandibles with their points distinctly bidentate. Abdomen of the male with the three last joints forming a tail armed with a forceps.

Sp. 1. Communis.

Panorpha communis. Linn. Fabr. Latr. Panz.

Inhabits Europe.

GENUS CCCXCIII. BITTACUS. Latreille.

PANORPA. Linn. Fabr.

Tarsi with a single nail. Palpi of the maxillæ distinctly longer than the labial ones; the second and third joint much lengthened, thicker; labial palpi with two elongate cylindric joints. Mandibles very long, narrow; apex acute, entire. Abdomen cylindric, that of the male not armed with a forceps. Legs long.

Sp. 1. Tifularius. Obscure reddish; wings imma-

edulate; external margins ciliated; stigmata obscure; points of the tibiae fuscous.

Panorpha tifularia. Linn. Fabr.

Butacus tifularius. Latreille.

Inhabits southern France.

TRIBE II. MYRMELEONIDES.*

Antennæ thicker towards their extremities. Palpi six. Wings equal. Tarsi five-jointed, the first and last joints longest; claws two, strong, elongate, acute.

GENUS CCCCXCIV. MYRMELEON. Linnæus, De Geer, Fabricius, Latreille, Leach.

Antennæ gradually thicker towards their extremities; shorter than the body. Eyes entire. Abdomen very long, linear. Labial palpi very long, apex obconic, truncate.

Sp. 1. *Libelluloides*. Body yellow, lineated with black; antennæ black; wings hyaline, with distant spots and points of blackish colour; under wings less maculated, with two abbreviated blackish bands; feet variegated.

Myrmeleon libelluloides. Linn. Latr. Fabr.

Inhabits the south of Europe, and all Africa.

GENUS CCCCXCV. FORMICALEO. Geoff. Leach.

MYRMELEON. Linn. Fabricius, Latreille.

Antennæ gradually thicker towards their extremities; shorter than the body. Eyes entire. Abdomen very long, linear. Labial palpi with the last joint incrassate fusiform, subulated towards the apex.

Sp. 1. *Formicarius*. Wings hyaline, apex acute maculated with fuscous; costal mark and some anastomoses whitish.

Myrmeleon formicarius. Linn. Latr. Fabr.

Formicaleo formicarius. Leach's MSS.

Inhabits Europe in sandy districts; it varies with immaculate wings.

GENUS CCCCXCVI. ASCALAPHUS. Fabricius, Latreille, Lamarck, Leach.

LIBELLOIDES. Shæffer.

MYRMELEON. Linn.

Antennæ abruptly terminated by an obtrigonal club. Eyes composed of two conjoined segments. Abdomen longer than the thorax, long-ovate.

Sp. 1. *Barbarus*. Body black spotted with yellow; wings nervured with golden yellow; upper ones from the base of the hinder margin even to the border, blackish, the border broadly paler; inferior ones with the base blackish, hyaline in the middle, the apex black.

Ascalaphus barbarus. Fabricius, Latreille.

Inhabits Barbary.

Sp. 2. *Italicus*. Black, maculated with luteous; wings obscurely nervured; superior ones with their basal costa, and with a spot opposite to the internal margin, white, yellow, or sulphur coloured, the intermediate space black; under ones with the base black, the middle white-yellow, the posterior margin and apex blackish.

Ascalaphus italicus. Fabricius, Latreille.

Inhabits southern Europe and part of Germany.

TRIBE III. HEMEROBIDES.

Antennæ filiform or setaceous. Palpi four. Wings equal. Tarsi five-jointed.

FAMILY I. Hemerobida.

Ocelli, or little eyes, not distinct.

GENUS CCCCXCVII. CHRYSOPA. Leach's MSS.

* This tribe probably contains two families.

† *Hemerobius phalanoides* De Leach places in a peculiar genus named DREPANEPTERYX.

‡ In the first volume of the *Zoological Miscellany*, is instituted a new genus, named NYMPHES, which belongs to this family.

HEMEROBIUS. Linné, Geoffroy, Fabricius, Latreille, Olivier, Lamarck.

Antennæ (at least as long as the body) with cylindric joints longer than broad.

Sp. 1. *Perla*.

Hemerobius perla. Linné, Fabricius, Latreille.

Chrysopa perla. Leach's MSS.

Inhabits woods.

Sp. 2. *Reticulata*.

Hemerobius chrysops. Linn.

Chrysopa reticulata. Leach's MSS.

Inhabits Europe.

GENUS CCCCXCVIII. HEMEROBIUS.† Linné, Fabricius, Latreille, Lamarck, Leach.

Antennæ as long, or shorter than the body, joints moniliform.

Sp. 1. *Hirtus*.

Hemerobius hirtus. Linn. Fabr. Latr.

Inhabits Germany.

FAMILY II. Osmylida.‡

Ocelli three distinct.

GENUS CCCCXCIX. OSMYLUS. Latreille.

HEMEROBIUS. Fabr. Villers, Rœmer, Donovan.

Antennæ moniliform.

Sp. 1. *Maculatus*. Fuscous; head and feet testaceous; wings hairy, the upper ones and the costal margin of the inferior ones spotted with black.

Hemerobius maculatus. Fabricius.

Hemerobius chrysops. Rœmer, Donovan.

Hemerobius fulvicephalus. Villers.

Inhabits France, Germany, and England; confounded with *Hemerobius chrysops* of Linnæus.

TRIBE IV. CORYDALIDES.

Thorax with the first segment large, not much longer than broad. Tarsi five-jointed. Wings of equal size. Feet resembling each other.

FAMILY I. Corydalida.

Ocelli three, arranged in a triangle. Wings incumbent horizontally. Tarsi with all the joints entire.

GENUS D. CORYDALIS. Latreille, Palisot.

HEMEROBIUS. Fabricius, Olivier.

RAPHIDIA. Linn.

Antennæ simple, the joints very short, cylindric. Mandibles very large, as long as the thorax. Head broader than the thorax.

Obs. Latreille considers this genus akin to *Raphidia*, notwithstanding the difference of the tarsal joints, both in number and form.

Sp. 1. *Cornuta*.

Hemerobius cornutus. Fabricius, Olivier.

Corydalis cornutus. Latreille, Palisot de Beauvois.

Raphidia cornuta. Linn.

Inhabits Africa, and part of America.

GENUS DI. CHAULIODES. Latreille, Palisot.

HEMEROBIUS. Linn. De Geer, Olivier.

SEMBLIS. Fabricius.

Antennæ pectinated. Mandibles short. Head of the same breadth as the thorax.

Sp. 1. *Pectinicornis*.

Hemerobius pectinicornis. Linn.

Sembris pectinicornis. Fabricius.

Chauliodes pectinicornis. Latr. Palisot de Beauvois.

Inhabits northern America.

FAMILY II. *Sialida*.

Wings deflexed. Tarsi with the last joint but one bifid. Ocelli none.

GENUS DII. *SIALIS*. Latreille.

HEMEROBIOUS. Geoffroy, De Geer, Olivier.

SEMBLIS. Fabricius.

Sp. 1. *Niger*.

Hémérobe aquatique noir. De Geer.

Hemerobius lutarius. Linnæus?

Sembris lutarius? Fabricius.

Inhabits Europe. The larva in water.

TRIBE V. MANTISPIDES.

Anterior feet raptorial. Thorax with the first segment large, long. Tarsi five-jointed. Wings of equal size, deflexed.

GENUS DIII. *MANTISPA*. Illiger, Latreille.

RAPHIDIA. Scopoli, Linnæus.

MANTIS. Fabricius, Pallas, Olivier.

Nerveurs hairy.

Sp. 1. *Pagana*. Pubescent-yellowish; thorax roughish; elytra with a yellowish costa, stigma darker.

Mantispa pagana. Illiger, Latreille.

Raphidia mantispa. Scopoli, Linn.

Mantis persa. Pallas.

Mantis pagana. Fabricius, Panzer.

Inhabits France and Germany.

TRIBE VI. RAPIDIDES.

Wings of equal size. Thorax with the first segment large. Tarsi with four distinct joints, the last but one bilobate. Antennæ nearly setaceous. Ocelli three, arranged in a triangle.

GENUS DIV. *RAPHIDIA*. Linn. Geoff. De Geer, Fabr. Oliv. Lam. Latr.

Head oval, narrowed behind, inflexed. Thorax with the first segment very long, narrow, and somewhat cylindric. Anus of the females with two united setæ.

Sp. 1. *Ophiopsis*.

Raphidia ophiopsis. Linn. Fabr. Latr.

Inhabits Europe.

TRIBE VII. TERMITIDES.

Wings of equal size, horizontally incumbent. Thorax with the first segment large. Tarsi with three distinct joints, the penultimate joint entire. Antennæ moniliform, inserted before the eyes. Head short, rounded behind. Ocellus one.

The animals of this tribe congregate in great numbers, and live in societies, being generally known by the term white ants, a name applied to all the species indiscriminately.

GENUS DV. *TERMES*. Linn. De Geer, Fabr. Oliv. Lam. Latr.

PERLA. De Geer.

HEMEROBIOUS. Linn.

Sp. 1. *Lucifugum*. Black, shining, and pubescent; thorax transversely quadrate, with the angles rounded, with an impression on each side of the anterior part, the intermediate space somewhat carinated; wings fuscous-hyaline, the costa blackish; apex of the joints of the antennæ, tibiae, (base excepted), and all the tarsi, pale-reddish.

Termes lucifugum. Rossi, Latreille.

Inhabits Italy.

TRIBE VIII. PSOCIDES.

Inferior wings smaller than the superior ones. Some are apterous. Palpi two, composed of four joints.

FAMILY I. *Psocida*.

Tarsi two-jointed.

GENUS DVI. *PSOCUS*. Latr. Fabr. Lam. Coquebert.

HEMEROBIOUS. Linnæus.

Wings four.

Sp. 1. *Bifunctatus*. Variegated with yellow and black; head above the clypeus blackish; superior wings with a small costal mark, and another on the opposite margin black; the interjected cords blackish; stigma white, with a black spot.

Psocus bifunctatus. Latreille, Fabricius, Coquebert.

Hemerobius bifunctatus. Linn.

Inhabits Europe.

FAMILY II. *Atropida*.

Tarsi three-jointed.

GENUS DVII. *ATROPOS*. Leach's MSS.

TERMES. Linn. De Geer.

PSOCUS. Fabricius, Latreille, Coquebert.

PEDICULUS. (Pov.) Geoffroy.

Sp. 1. *Lignaria*.

Termes fulsatorium. Linn.

Termes lignarium. De Geer.

Le Pou du Bois. Geoffroy.

Psocus fulsatorius. Fabricius, Latreille, Coquebert.

Inhabits old books, often beating like a watch, whence it has acquired the name of death-watch.

Psocus fatidicus of Fabricius, is referable to the genus *Atropos*, but whether it be a distinct species from *Atropos lignaria* is certainly very doubtful.

TRIBE IX. PERLARIDES.

Inferior wings larger than the superior ones, with longitudinal folds. Tarsi with three joints. Mandibles distinct. Thorax with the first segment large.

Obs. The wings horizontally incumbent.

GENUS DVIII. *NEMOURA*. Latreille.

PHRYGANEA. Linnæus.

PERLA. Geoffroy, De Geer.

SEMBSIS. Fabricius.

Labrum very distinct, almost semicircular. Mandibles corneous. Palpi filiform. Tarsi with equal lengthened joints (the middle one scarcely shorter) not spongy beneath. Anus without setæ.

Sp. 1. *Nebulosa*. Fuscous-black, pubescent; abdomen and feet reddish-fuscous; wings cinereous, immaculate, the nerveurs darker.

Le Perle Brune à ailes pâles. Geoffroy.

Nemoura nebulosa. Latreille.

Inhabits Europe.

GENUS DIX. *PERLA*. Geoffroy, De Geer, Olivier, Lamarck, Latreille.

PHRYGANEA. Linn.

SEMBSIS. Fabricius.

Labrum obscure, transversely linear. Mandibles almost membranaceous. Palpi almost setaceous. Tarsi with the two basal joints shorter than the third; Anus with two long setæ.

Sp. 1. *Marginata*.

Sembris marginata. Fabricius.

Perla marginata. Latreille.

Inhabits Europe.

Phryganea bicaudata of Linnæus belongs to this genus.

ORDER XIV. HYMENOPTERA.

ORDER HYMENOPTERA. Linn. Latr. Lam. Cuvier.

CLASS PIEZATA. Fabricius.

Characters of the Order.

Wings nervured, (the areolæ large and unequal in size,) the inferior ones smaller than the upper. Anus of the females with a sting or an oviduct.

SECTION I. TEREBRANTIA.

Oviduct lamelliform or filiform, in a few resembling a sting and valved; the vagina bivalve, received in a canal beneath the anus, the valves compressed, in some compressed lamelliform; in others elongate-cylindrical, setaceous.

DIVISION I.

Abdomen united to the thorax along its whole breadth, without any distinct peduncle.

TRIBE I. TENTHREDINIDES.

Abdomen sessile. Oviduct composed of two lamellæ which are serrated. Mandibles more or less long, terminated by two strong teeth. Wings with the marginal cells complete.

FAMILY I. Tenthredinida.

Labrum distinct. Larvæ with membranaceous feet.

GENUS DX. CIMBEX. Oliv. Fabr. Spinoli, Latr.

TENTHREDO. Linnæus, Jurine, Panzer, De Geer.

CRABRO. Geoffroy.

CLAVELLARIA. De Lamarck.

Antennæ terminated by a distinct club, nearly ovoid.

Obs. This genus is artificial; it contains several natural genera, which may be defined from the joints composing their antennæ.

* Antennæ with five joints before the club, which is nearly solid.

Sp. 1. *Femorata*. Fabricius.

Sp. 2. *Axillaris*. Panzer.

** Antennæ with five joints before the club, which is distinctly articulated.

Sp. 3. *Leucorum*. Fabricius.

*** Antennæ with four joints before the club, which is indistinctly articulated.

Sp. 4. *Amerina*. Fabricius, Panzer.

Sp. 5. *Marginata*. Fabricius, Panzer.

Sp. 6. *Lata*. Panzer.

Sp. 7. *Obscura*. Panzer.

**** Antennæ with four joints before the club, which is two-jointed.

Sp. 8. *Faciata*. Fabricius, Panzer.

***** Antennæ with four joints before the club, which is composed of three joints.

Sp. 9. *Sericea*. Fabricius, Panzer.

Tenthredo sericea and *nitens* of Linnæus are but sexual distinctions of the same species.

GENUS DXI. HYLOTOMA. Latr. Fabr. Spinoli.

TENTHREDO. Linné, Geoffroy, De Geer, Panzer, Lamarck, Olivier.

CRYPTUS. Jurine.

ARGE. Schrank.

Antennæ gradually thickening towards their extremities, composed of three joints. Superior wings with

four submarginal cells, and one marginal cell emitting a little branch.

Sp. 1. *Rosæ*.

Tenthredo rosæ. Linn.

Hylotoma rosæ. Fabricius, Latreille.

Inhabits Europe.

Obs. *Hylotoma furcata* of Latreille, *Tenthredo furcata* of Panzer, and its congeners, are distinguished from the genuine *Hylotoma*, by having filiform bifurcate antennæ, and should constitute a peculiar genus.

GENUS DXII. TENTHREDO.* Linné, Geoffroy, De Geer, Latreille.

ALLANTUS. Jurine.

Antennæ simple, composed of nine joints. Superior wings with two marginal and with four submarginal cells.

Sp. 1. *Scrophulariæ*.

Tenthredo scrophulariæ. Linn. Fabr. Panzer.

Allantus scrophulariæ. Jurine.

Inhabits *Scrophularia nodosa* and *aquatica* when in flower.

Sp. 2. *Militaris*.

Tenthredo militaris. Fabricius, Panzer.

Inhabits grassy places and the margins of woods.

GENUS DXIII. DOLERUS. Jurine, Latreille.

TENTHREDO. Fabricius, Linnæus.

Antennæ simple, nine-jointed. Superior wings with two marginal and three submarginal cells.

Sp. 1. *Gonagra*.

Dolerus gonagra. Jurine, Latreille.

Tenthredo gonagra. Fabricius, Panzer.

Inhabits Europe.

GENUS DXIV. NEMATUS. Jurine, Latreille.

Antennæ simple, nine-jointed. Superior wings with one marginal and four submarginal cells.

Sp. 1. *Septentrionalis*.

Tenthredo septentrionalis. Fabr. Panzer.

Nematus septentrionalis. Jurine, Latr.

Inhabits the European woods.

GENUS DXV. PRISTIPHORA. Latr.

PTERONIS. Jurine.

Antennæ simple, nine-jointed. Superior wings with one marginal and three submarginal cells. Mandibles bidentate.

Sp. 1. *Testacea*.

Pteron testaceus. Jurine.

Pristiphora testacea. Latr.

GENUS DXVI. CLADIUS. Latr. Illiger.

TENTHREDO. Panzer.

Antennæ nine-jointed, branched in the male, simple in the female. Superior wings with one marginal and four submarginal areolæ or cells. Mandibles bidentate.

Sp. 1. *Difformis*.

Tenthredo difformis. Panzer.

Cladius difformis. Latr.

Inhabits Europe.

GENUS DXVII. LOPHYRUS. Latr.

PTERONUS. Jurine.

HYLOTOMA. Fabr.

TENTHREDO. Linn. De Geer, Oliv. Lam. Panzer.

Antennæ pennate in the males, serrated in the females. Superior wings with one marginal and three submarginal cells. Mandibles tridentate.

Sp. 1. *Pini*.

Tenthredo pini. Linn.

* Some species which are placed in this genus by Latreille, have ten or fourteen joints in their antennæ; these should constitute distinct genera.

Hylotoma fini. Fabr.

Lophyrus fini. Latr.

Inhabits Europe.

FAMILY II. *Xiphodrida*.

Labrum obscure. Larvæ with scaly feet, or at least not membranaceous.

GENUS DXVIII. *MEGALADONTES*. Latr. Spinoli.

TARPA. Fabr. Panzer.

CEPHALEIA. Jurine.

DIPHION, Schrank.

Mandibles long, slender, and strongly bent. Neck not elongate. Oviduct not exerted. Antennæ pectinate or serrated.

Sp. 1. Cephalotes.

Megalodontes cephalotes. Spinoli, Latr.

Tarpha cephalotes. Fabr.

Inhabits Europe.

GENUS DXIX. *PAMPHILIUS*. Latr. Olivier.

TENTHREDO. Linn. Lamarck, Panzer.

LYDA. Fabr. Spinoli.

CEPHALEIA. Jurine.

PSEN. Schrank.

Mandibles long, slender, and strongly bent. Neck not elongate. Oviduct not exerted. Antennæ simple in both sexes.

Sp. 1. Erythrocephalus.

Pamphilus erythrocephalus. Latr.

Lyda erythrocephala. Fabr.

Inhabits Germany and England.

GENUS DXX. *CEPHUS*. Latr. Fabr. Panz.

SIREX. Linn.

ASTATUS. Klug.

TRACHELUS. Jurine.

Mandibles exerted, longer than wide. Neck long. Oviduct exerted. Antennæ inserted in the front between the eyes, gradually thicker externally.

Sp. 1. Troglodyta.

Cephus troglodyta. Panzer, Latr.

Inhabits Europe.

Sp. 2. Pygmaeus.

Cephus pygmaeus. Latr. Fabr.

Sirex pygmaeus. Linn.

Inhabits Europe.

GENUS DXXI. *XIPHYDRIA*. Latr. Fabr. Panz. Spinoli.

SIREX. Linn.

URO CERUS. Jurine.

HYBONOTUS. Klug.

Mandibles exerted, longer than wide. Neck long. Oviduct exerted. Antennæ setaceous, inserted above the clypeus.

Sp. 1. Camelus.

Sirex camelus. Linn.

Hybonotus camelus. Klug.

Xiphodria camelus. Latr. Fabr.

Inhabits Europe.

Sp. 2. Dromedarius.

Hybonotus dromedarius. Klug.

Xiphodria dromedarius. Latr. Fabr.

Inhabits Europe.

TRIBE II. *URO CERIDES*.*

Abdomen sessile. Oviduct filiform, exerted, or inclosed in a groove beneath the abdomen. Mandibles short.

* This tribe Dr Leach has proposed to divide into two families, the one to contain the genus *Oryssus*, the other *Sirex*, *Urocerus*, and *Tremex*.

GENUS DXXII. *ORYSSUS*. Latr. Fabr. Jurine, Lam. Klug. Panz.

SPIEX. Scopoli.

Mandibles with their internal edge not dentated. Maxillary palpi long and pendulous. Antennæ filiform, compressed, inserted under the anterior margin of the clypeus. Superior wings with one marginal cell, and two submarginal, the last incomplete. Oviduct capillary, hidden in a longitudinal groove.

Sp. 1. Coronatus.

Oryssus coronatus. Fabr. Latr. Coquebert.

Oryssus vespertilio. Klug, Panzer.

Sphex abietina. Scopoli.

Inhabits Europe.

GENUS DXXIII. *URO CERUS*. Geoff. Schæff. Oliv. Lam. Latr. Leach.

SIREX. Linn. Fabr. Jurine, Panz. Klug, Leach.

ICHNEUMON. De Geer, Scopoli.

Mandibles dentated on their internal edge. Maxillary palpi very small. Labial palpi terminated by a very thick, hairy joint. Antennæ gradually narrowing externally, inserted in the front; longer than the thorax. Superior wings with two marginal and two submarginal cells complete. Abdomen terminating in a point. Oviduct exerted, composed of three parts, the outer ones valviform.

Obs. This genus contains two great divisions, which, from their characters, are evidently natural genera.

* Antennæ with 25 joints. Abdomen of the female terminated with an abrupt elongate horn. Labial palpi with a distinct basal joint. Maxillary palpi with two distinct joints of equal length.

GENUS *URO CERUS*. Leach.

Sp. 1. Gigas.

Sirex mariscus. Fabr. (Male).

Sirex gigas. Linn. Fabr. Latr. (Female).

Urocerus gigas. Latr.

Inhabits Europe. Is rare in Britain.

Sp. 2. Psyllius.

Sirex psyllius. Fabr. Klug.

Urocerus gigas. (Variety). Latr.

Inhabits Europe. Was taken near Edinburgh by Mr John Wilson, of the College, Edinburgh.

** Antennæ with 21 or 23 joints. Maxillary palpi with their basal joint very short, scarcely to be found.

A. Abdomen of the female terminated by an abrupt, elongate horn. Labial palpi distinctly triarticulated.

GENUS *SIREX*. Leach.

Sp. 3. Spectrum.

Sirex emarginatus. Fabr. (Male).

Sirex spectrum. Linn. Panzer, Klug. (Female).

Urocerus spectrum. Latr.

B. Abdomen of the female with the extremity gradually acuminate.

Sp. 4. Juvenus.

Sirex juvenus. Linn. Fabr. Klug, (Female).

Sirex noctilio. Fabr. Panzer, (Male).

Urocerus juvenus. Latr.

Sirex juvenus. Leach.

Inhabits Europe. Is rare in Britain.

GENUS DXXIV. *TREMEX*. Latr.

SIREX. Jurine, Fabr. Klug.

Mandibles denticulated on their internal edge. Maxillary palpi very small. Labial palpi terminated by a joint, very thick and very hairy. Antennæ setaceous, inserted in the front. Superior wings with two mar-

ginal, and two submarginal cells, complete. Abdomen terminating in a point. Oviduct exerted, composed of three parts, the outer ones valviform.

Sp. 1. Fuscicornis.

Sirex fuscicornis. Fabr. Klug.

Tremex fuscicornis. Latr.

Sp. 2. Columba.

Sirex columba. Fabr.

Tremex columba. Latr.

DIVISION II.

Abdomen united to the thorax by a slender peduncle.

TRIBE III. EVANIDES.

Inferior wings with very distinct nervures. Antennæ with 13 or 14 joints.

GENUS DXXV. EVANIA. Fabr. Oliv. Lam. Jurine, Panzer.

SPHEX. Linn.

ICHNEUMON. De Geer.

Abdomen very small, much compressed, triangular or ovoid, abruptly pediculated, and inserted behind the metathorax.

* Antennæ with the third joint much longer than the second. Upper wings with distinct nervures and cells. Mandibles with their internal edge truncate-unidentate. Maxillary palpi with five distinct joints, the basal joint obsolete; the last joint but one of the labial palpi much dilated. Superior wings with a triangular marginal cell; first sub-marginal cell distinct; the second open; three middle cells open beneath.

Sp. 1. Levigata.

Evania lisse. Oliv.

Evania aphendigaster. Fabr.

Evania levigata. Latr.

Inhabits America.

Dr Leach has seen this insect alive in some boxes of American insects, and he possesses two specimens taken at large in London.

** Antennæ with the third joint much larger than the second. Upper wings with distinct nervures and cells. Mandibles with their internal edge distinctly and acutely tridentate. Maxillary palpi with six distinct joints; the last joint but one of the labial palpi not much dilated. Superior wings with the marginal cell semi-ovate; middle cells two; apex without cells.

Sp. 2. Aphendigaster.

Evania aphendigaster. Panz. Oliv. Latr.

Sphex aphendigaster. Linn.

Inhabits southern France, Spain, and Italy.

*** Antennæ with the third joint not much longer than the second. Superior wings with the nervures and cells obliterated.

Sp. 3. Minuta.

Evania minuta. Oliv. Fabr. Latr.

Brachygaster minutus. Leach's MSS.

Inhabits France and England.

GENUS DXXVI. FENUS. Fabr. Latr. Jurine, Panz.

ICHNEUMON. Linn. Geoff. De Geer.

GASTERUPTION. Latr. (obsolete).

Neck elongate. Hinder tibiae clavate. Abdomen a lengthened club.

Sp. 1. Jaculator.

Fenus jaculator. Fabr. Panz. Latr.

Ichneumon jaculator. Linn.

Inhabits Europe.

GENUS DXXVII. PELECINUS. Latr. Fabr.

Neck not apparent. Hinder tibiae clavate. Abdomen slender, long, and filiform.

Sp. 1. Polycerator.

Pelecinus polycerator. Latr. Fabr.

Inhabits America.

GENUS DXXVIII. AULACUS. Jurine, Spinoli.

Abdomen elliptic, compressed, with a gradually formed peduncle, inserted at the extremity of an elevation in the metathorax.

Sp. 1. Striatus.

Aulacus striatus. Jurine, Latr.

Inhabits the Alps.

TRIBE IV. ICHNEUMONIDES.

Abdomen attached to the thorax by a part of its transverse diameter. Inferior wings with very distinct nervures. Antennæ with 21 joints and more.

FAMILY I. Stephanida.

Mandibles terminated by an entire point, or with but a very obscure notch. Head globose.

GENUS DXXIX. STEPHANUS. Jurine, Illiger, Latr.

BRACON. Fabr. Panzer.

Thorax much attenuated anteriorly. Metathorax cylindrical, straight or horizontal. Abdomen inserted at the superior and posterior extremity of the metathorax, the first segment abruptly narrower than the rest.

Sp. 1. Coronatus.

Stephanus coronatus. Jurine, Latr.

Bracon serrator. Fabr. Panzer.

Inhabits Germany.

GENUS DXXX. XORIDES. Latr.

ANOMALON. Jurine.

CRYPTUS. Fabr.

Metathorax with the hinder segment convex, and at the apex rounded. Abdomen distinctly pedunculated, inserted under the posterior and superior apex of the metathorax.

Sp. 1. Indicatorius.

Xorides indicatorius. Latr.

Inhabits Europe.

FAMILY II. Ichneumonida.

Mandibles bidentate, or notched at their extremity.

DIVISION I.

Abdomen with five very distinct segments.

Subdivision 1.

Superior wings with the first submarginal cell very large; the two discoidal cells situated longitudinally, one above the other.

GENUS DXXXI. ICHNEUMON. Latreille.

Maxillary palpi with very unequal joints. Oviduct with its base not covered by a large scale, exerted.

Obs. This genus, which has been attentively examined by Latreille, consists of several natural genera; but the characters are obscure, and are not yet fully understood. Under this head, the following genera, (or parts of them), proposed by Jurine, Fabricius, Panzer, Illiger, and Walckenaer, are comprehended; viz. 1. *Cryptus*, 2. *Bassus*, 3. *Pimpla*, 4. *Jospha*, 5. *Metopius*, 6. *Trogus*, 7. *Atomys*, 8. *Peltastes*, 9. *Ophion*, and, 10. *Banachus*.

The following divisions are proposed by Latreille, who has submitted these insects to a scrupulous and daily investigation.

Division A.

Abdomen but little or not at all compressed.

Subdivision a.

Extremity of the abdomen of the female compressed, and obliquely truncated; oviduct exserted.

1. * Abdomen cylindric, with a very short peduncle.

GENUS *PIMPLA* of Fabricius.

2. ** Abdomen somewhat ovoid, with the peduncle long, slender, and arcuate.

GENUS *CRYPTUS* of Fabricius.

Subdivision b.

Extremity of the abdomen of the female slightly compressed, not obliquely truncated; oviduct scarcely prominent or exserted.

3. * Abdomen cylindric, almost sessile.

GENUS *METOPUS* of Panzer; *PELASTES* of Illiger.

4. ** Abdomen almost fusiform or cylindric, gradually narrower towards the base; the peduncle not slender or arcuate.

GENUS *ALONYA* of Panzer.

5. *** Abdomen ellipsoid or ovalate, with the peduncle slender and arcuate

GENUS *ICHNEUMON* of Fabricius.

Division B.

Abdomen very much compressed.

6. * Abdomen, apex truncate in the females.

GENUS *OPHION* of Fabricius.

7. ** Abdomen with the apex pointed.

GENUS *BANCHUS* of Fabricius.

GENUS *DXXXII. ACÆNITUS*. Latr.

CRYPTUS. Fabr. Panzer.

ICHNEUMON. Schæffer, Scopoli, Oliv.

ANOMALON. Jurine.

Palpi with their joints not very unlike each other.

Oviduct covered at its base by a large scale.

Sp. 1. Dubitator.

Cryptus dubitator. Fabr. Panzer.

Acænitus dubitator. Latr.

Inhabits Germany.

Subdivision 2.

Superior wings with the first submarginal cell small, or moderately sized; the two discoidal cells placed in a transverse line by the side of each other.

GENUS *DXXXIII. BRACON*. Jurine, Fabr. Panzer, Illiger, Spinoli, Latr.

ICHNEUMON. Linn. Scopoli, Schrank.

VIPIO. Latr. (Rejected name).

Mouth produced into a rostrum. Superior wings with the two first submarginal cells nearly equal, square.

Sp. 1. Desertor.

Bracón desertor. Fabr. Latr.

GENUS *DXXXIV. AGATHIS*. Latr.

ICHNEUMON. Jurine.

BRACON. Fabr. Spinoli.

Mouth produced into a rostrum. Superior wings with the second submarginal cell very small.

Sp. 1. Panzeri.

Ichneumon panzeri. Jurine.

Agathis panzeri. Latreille.

GENUS *DXXXV. MICROGASTER*. Latreille, Illiger, Spinoli.

ICHNEUMON. Linnæus, Fabricius, Jurine, Rossi.

CEROPALES. Fabricius.

CRYPTUS. Fabricius.

BASSUS. Panzer.

Mouth not produced. Abdomen very small and depressed. Oviduct short. Superior wings with one marginal cell nearly obsolete in some, and three sub-marginal; the second minute, the last terminal imperfect.

Sp. 1. Deprimator.

Ichneumon deprimator. Fabricius.

Microgaster deprimator. Latreille.

Inhabits Germany.

DIVISION II.

Abdomen almost inarticulate, with but three distinct segments.

GENUS *DXXXVI. SIGALPHUS*. Latreille, Spinoli.

SPHÆROPYX. Hoffmannsegg.

CRYPTUS. Fabricius.

ICHNEUMON. Fabricius.

CHELONUS. Jurine, Panz. Illiger.

BRACON. Jurine.

Sp. 1. Irrigator.

Sigalphus irrigator. Latreille.

Cryptus irrigator. Fabricius.

FAMILY III. Alysiada.

Mandibles tridentate at their extremities, forming an irregular square.

GENUS *DXXXVII. ALYSIA*. Latr.

CRYPTUS. Fabricius.

BASSUS. Panzer.

BRACON. Jurine.

CECHENUS. Illiger.

Sp. 1. Manducator.

Cryptus manducator. Fabricius.

Bracón manducator. Jurine.

Bassus manducator. Panzer.

Inhabits Germany.

TRIBE X. DIPLOLEPIDES.

Abdomen inserted to the thorax by a part only of its transverse diameter. Inferior wings without distinct nervures. Body not contractile into a sphere. Abdomen compressed or depressed. Oviduct filiform. Palpi very short. Antennæ filiform, straight, from thirteen to sixteen-jointed.

FAMILY I. Diptolepida.

Abdomen very shortly, or not at all pedunculated.

GENUS *DXXXVIII. IBALIA*. Latreille, Illiger.

BANCHUS. Fabricius.

SAGARIS. Panzer.

CYNIPS. Jurine.

Abdomen very much compressed, knife-shaped. Antennæ filiform, joints cylindric.

Sp. 1. Cultellator.

Ibalia cultellator. Latreille.

Banchus cultellator. Fabricius.

Sigaris cultellator. Panzer.

Inhabits Germany and the south of France.

GENUS *DXXXIX. DIPLOLEPIS*. Geoffroy, Olivier, Panzer, Illiger.

CYNIPS. Linnæus, Scopoli, Illiger.

Abdomen with the inferior part compressed, triangular-ovoid. Antennæ filiform, joints cylindric.

Sp. 1. Quercus-folii.

Cynips quercus-folii. Linnæus.

Diplolepis quercus-folii. Latr.

Inhabits Europe.

GENUS DXL. FIGITES. Latr, Jurine.

CYNIPS: Rossi.

Abdomen with its inferior part compressed, triangular-ovoid. Antennæ moniliform, thicker towards their extremities.

Sp. 1. Scutellaris.

Figites scutellaris. Jurine, Latr.

Cynips scutellaris. Rossi.

Inhabits France and England.

FAMILY II. *Eucharida.*

Abdomen with a very distinct elongate peduncle.

GENUS DXLI. EUCCHARIS. Latr. Fabr. Panzer. Spin.

CYNIPS. Olivier.

ICHNEUMON. Rossi.

CHALCIS. Jurine.

Sp. 1. Ascendens.

Eucharis ascendens. Latreille, Fabricius, Panzer.

Inhabits Germany.

TRIBE VI. CYNIPSIDES.

Abdomen attached to the thorax by a part only of its transverse diameter. Inferior wings without distinct nervures. Body not contractable into a ball. Abdomen compressed, or depressed. Oviduct filiform. Palpi very short. Antennæ broken, clavate, or gradually thicker externally, from six to twelve-jointed. Hinder feet formed for leaping.

FAMILY I. *Chalcida.*

Hinder tibiæ very much arcuated.

GENUS DXLII. LEUCOSPIS. Fabr. Oliv. Panz. Ju-

rine, Illiger, Spinoli, Latr.

CYNIPS. De Latour.

VESTA. Sulzer, Christus.

Abdomen as if sessile, somewhat ovate, compressed, thicker above. Maxillary palpi with the second and third joints equally long. Superior wings longitudinally duplicated, with the marginal and the third submarginal cells distinct, abbreviated, open.

Sp. 1. Gigas.

Leucospis gigas. Fabr. Latr.

Inhabits France and Germany.

GENUS DXLIII. CHALCIS. Fabr. Oliv. Panzer, Ju-

rine, Illiger, Latr.

SPHEX. Linnæus.

VESPA. Linnæus.

Abdomen ovoid-triangular, not sessile, terminated by a point. Superior wings not folded, with the marginal and submarginal cells none or obliterated. Maxillary palpi, with the last joint but one shorter than the one before it.

* Abdomen with an elongate peduncle.

Sp. 1. Clavipes.

Chalcis clavipes. Latreille.

Inhabits Europe.

** Abdomen with a very short peduncle.

Sp. 2. Minuta.

Chalcis minuta. Fabricius, Panzer, Latreille.

Inhabits Europe.

FAMILY II. *Cynipsida.*

Hinder tibiæ straight.

DIVISION I.

Anterior segment of the thorax large, forming a transverse quadrate, or triangular, with the apex obtuse or truncate.

Subdivision 1.

Mandibles with three or four teeth. Thorax with the anterior segment rounded. Antennæ with eight joints, and above.

GENUS DXLIV. EURYTOMA. Illiger, Latreille.

ICHNEUMON. De Geer.

CYNIPS. Fabricius, Schrank.

DIPLOLEPIS. Fabricius.

EUCCHARIS. Fabricius, Panzer.

CHALCIS. Jurine.

FIGITES. Spinoli.

Antennæ with distinct, somewhat rounded joints, verticillate-pilose in the males. Abdomen much compressed. Oviduct moderately exserted.

Sp. 1. Serratula.

Cynips serratula. Fabricius.

Eucharis serratula. Panzer.

Eurytoma serratula. Latreille.

Inhabits Germany.

GENUS DXLV. CYNIPS. Geoffroy, Schæff. Fabr. Olivier, Walck. Latreille.

ICHNEUMON. Linnæus.

DIPLOLEPIS. Fabr. Illiger, Spin.

CLEPTES. Fabricius.

CHALCIS. Cuvier, Lam. Jurine.

Antennæ with cylindric joints. Abdomen compressed. Oviduct exserted.

Sp. 1. Caprea.

Cynips caprea. Fabricius, Latreille.

Inhabits Europe.

Subdivision 2.

Mandibles with three or four teeth. Thorax with the anterior segment rounded. Antennæ six or seven-jointed, branched sometimes in the males.

GENUS DXLVI. EULOPHUS. Geoffroy, Olivier, Latr.

ICHNEUMON. Linnæus, De Geer, Spinoli.

DIPLOLEPIS. Fabricius, Spinoli.

CLEPTES. Fabricius.

CYNIPS. Christus, Jurine.

CHALCIS. Lamareck, Jurine.

Sp. 1. Ramicornis.

Diplolepis ramicornis. Fabr.

Eulophus ramicornis. Latr.

Inhabits Europe.

Subdivision 3.

Thorax with the anterior segment attenuated in front, somewhat conic. Mandibles bidentate.

GENUS DXLVII. CLEONYMUS. Latreille.

DIPLOLEPIS. Fabricius, Spinoli.

ICHNEUMON. De Geer, Rossi.

Antennæ inserted towards the middle of the face. Maxillary palpi with four, labial with three joints. Abdomen depressed, trigonate.

Sp. 1. Depressa.

Diplolepis depressa. Fabricius.

Cleonymus depressus. Latreille.

Inhabits Europe.

GENUS DXLVIII. SPALANGIA. Latreille, Spinoli.

Antennæ inserted near the mouth. Palpi biarticulate. Abdomen ovate-conic.

Sp. 1. Nigra.

Spalangia nigra. Latreille, Spinoli.
Inhabits France.

DIVISION II.

Thorax with the anterior segment very short, transverse-linear.

Subdivision. 1.

Mandibles almost quadrate, with three or four distinct teeth.

GENUS DXLIX. *PERILAMPUS.* Latreille.

DIPLOLEPIS. Fabricius, Illiger, Panzer, Spinoli.

CHALCIS. Rossi, Cuvier, Lamarck, Jurine.

CYNIPS. Olivier, Walckenaer.

Mandibles strongly toothed. Club of the antennæ short, fusiform.

Sp. 1. Violaceus.

Diplolepis violacea. Fabricius.

Perilampus violaceus. Latreille.

GENUS DL. *PTEROMALUS.* Swed. Latr.

ICHNEUMON. Linnæus.

DIPLOLEPIS. Fabricius, Spinoli.

CLEPTES. Fabricius.

CYNIPS. Olivier.

Sp. 1. Tortricis.

Pteromalus tortricis. Latreille.

Subdivision 2.

Mandibles terminated in a point, with two or more teeth.

GENUS DLL. *ENCYRTUS.* Latreille.

ICHNEUMON. Rossi.

MIRA? Schellenberg.

Mandibles terminated with but one tooth. Abdomen very short, trigonate. Head much compressed behind. Scutellum large.

Sp. 1. Infidus.

Ichneumon infidus. Rossi.

Encyrtus infidus. Latreille.

Mira mucora? Schellenberg?

Inhabits Europe.

GENUS DLII. *PLATYGASTER.* Latreille.

SCELIO. Latreille, (rejected name.)

Mandibles terminated by two teeth. Abdomen elongate, depressed. Antennæ ten-jointed; the first joint very long, the third much longer than the following joints. Head trigonate-globose.

Sp. 1. Ruficornis.

Platygaster ruficornis. Latreille.

Inhabits France.

GENUS DLIII. *SCELIO.* Latreille.

CERAPHRON? Jurine, Spinola.

Mandibles terminated by two teeth. Abdomen elongate, depressed. Antennæ ten-jointed, the first and third joints but little lengthened.

Sp. 1. Rugulosus.

Scelio rugulosus. Latreille.

GENUS DLIV. *TELIA.* Latreille.

Mandibles terminated by two teeth. Abdomen elongate, depressed. Antennæ twelve jointed.

Sp. 1. Brevicornis.

Telias brevicornis. Latreille.

TRIBE VII. PROCTOTRUPIDES.

Abdomen attached to the metathorax by a portion of its transverse diameter. Inferior wings without distinct nervenurs. Body not contractable into a ball. Ab-

domen compressed, or depressed, the hinder extremity produced into a point or tubular tail, which is univalve or bivalve. Maxillary palpi long and pendant.

DIVISION I.

Thorax not binodate, the anterior segment transverse, arcuate.

Subdivision 1.

Antennæ with the first joint very long; inserted towards the mouth.

GENUS DLV. *SPARASION.* Latreille.

CERAPHRON. Jurine.

Antennæ twelve-jointed. Abdomen elliptic, depressed, without any very distinct peduncle.

Sp. 4. Frontale.

Sparasion frontale. Latreille.

Ceraphron cornutus. Jurine, (female.)

Inhabits France.

GENUS DLVI. *CERAPHRON.* Jurine, Spinola, Latr.

Antennæ eleven-jointed. Abdomen ovoid, compressed, pedunculated distinctly.

Sp. 1. Sulcatus.

Ceraphron sulcatus. Jurine, Spinola, Latreille.

GENUS DLVII. *ANTEON.* Jurine, Latreille.

Antennæ ten-jointed. Abdomen very distinctly and abruptly pedunculated, ovoid and depressed.

Sp. 1. Jurineanum.

Anteon jurineanum. Latreille.

Subdivision 2.

Antennæ inserted towards the middle of the face, or in the front, the first joint very long.

GENUS DLVIII. *PSILUS.* Jurine, Panzer, Spinola.

DIAPRIA. Latreille.

CHALCIS. Fabricius.

ICHNEUMON. Villers, Rossi.

Antennæ moniliform; of the males fourteen-jointed; of the females twelve-jointed. Superior wings with no cells; the costal nerve abbreviated, thicker towards its extremity.

Sp. 1. Cornutus.

Psilus cornutus. Panzer.

Diapria cornuta. Latreille.

Inhabits Europe.

GENUS DLIX. *BELYTA.* Jurine, Latreille.

CINETUS. Jurine.

Antennæ filiform; of the male fifteen; of the female fourteen-jointed; all the basal joints elongate. Superior wings with the cells complete.

Sp. 1. Bicolor.

Belyta bicolor. Jurine, Latreille.

Subdivision 3.

Antennæ with the first joint not elongate.

GENUS DLX. *PROCTOTRUPES.* Latreille, Spinola.

CODRUS. Jurine, Panzer.

ERTODORUS. Walck.

Antennæ thirteen-jointed. Mandibles without teeth. Superior wings with three complete cells. Abdomen scarcely pedunculated, terminated by a joint more or less long.

Sp. 1. Breviennis.

Proctotrupes breviennis. Latreille, *Gen. Crust. et Ins.* 4. 38, tab. 13, fig. 1.

Inhabits Europe.

GENUS DLXI. *HELORUS.* Latreille, Jurine.

SPHEX. Panzer.

PSEN. Panzer.

Antennæ fifteen jointed. Mandibles dentated. Superior wings with more than three complete cells. Abdomen distinctly and abruptly pedunculated, not terminated in a point.

Sp. 1. Anomalipes.

Spheg anomalipes. Panzer.

Helorus anomalipes. Latreille.

Inhabits Germany and France.

DIVISION II.

Thorax binodate, the anterior segment elongate-quadrate, or somewhat triangular. Antennæ inserted on the clypeus, near to the mouth.

GENUS DLXII. DRYINUS. Latreille.

GENATOPUS. Klug.

Antennæ straight, ten-jointed. Mandibles with many teeth. Thorax binodate. Anterior feet very long, terminated by two very large nails internally denticulated, one of these reflexed.

Sp. 1. Formicarius.

Dryinus formicarius. Latreille.

Inhabits France.

GENUS DLXIII. BETHYLUS. Latreille, Fabricius, Illiger, Spinola.

OMALUS. Jurine.

CERAPHIRON. Panzer.

Antennæ broken, composed of thirteen joints. Mandibles bidentate. Thorax binodate, the anterior segment elongate-quadrate. Feet simple.

Sp. 1. Cenoferus.

Bethylus cenoferus. Latreille.

TRIBE VIII. CATHARTIDÆ.

Abdomen attached to the metathorax by a portion only of its transverse diameter. Inferior wings without distinct nervures. Body not contractile into a ball.

FAMILY I. Cleptida.

Abdomen semicylindric or semicircular, with five segments in the male, and four in the females. Thorax attenuated in front, divided transversely by four segments.

GENUS DLXIV. CLEPTES. Latreille, Fabricius, Panzer, Jurine, Illiger, Spinoli.

SPHEX. Linn. Vill.

CHRYSID. Olivier.

VESPA. Geoffroy.

ICHNEUMON. Rossi, Walck.

Sp. 1. Semiaurata.

Cleptes semiaurata. Fabricius, Latreille.

Inhabits Europe.

FAMILY II. Chrytida.

Abdomen semicylindric, truncated or rounded behind, often dentated, composed of three, sometimes of four joints. Thorax semicylindric, divided by three transverse sutures.

DIVISION I.

Metathorax with the middle produced into a scutellum.

Subdivision 1.

Abdomen with the second segment larger than the others. Palpi many-jointed.

GENUS DLXV. ELAMPUS. Spinoli, Latreille.

CHRYSID. Fabricius, Jurine.

HEDYCHRUM. Panzer, Lepeletier.

Mandibles dentated. Abdomen terminated by an obtuse point; the second segment larger than the others.

Sp. 1. Panzeri.

Elampus panzeri. Spinoli.

Chrysis panzeri. Fabricius.

Inhabits France and Germany.

GENUS DLXVI. STILBUM. Spinoli, Latreille.

CHRYSID. Linn. Olivier, Illiger, Jurine.

Mandibles without teeth. Abdomen with the third segment very large, slightly dentate behind.

Sp. 1. Splendidum.

Chrysis splendida. Fabricius, Donovan.

Inhabits India.

Subdivision 2.

Abdomen with the third or fourth segment larger than the others. Palpi two-jointed, (and very small.)

GENUS DLXVII. PARNOSES. Latreille, Fabricius, Spinoli, Illiger, Lepeletier.

CHRYSID. Rossi, Olivier, Jurine.

Sp. 1. Carneæ.

Parnoses carneæ. Latreille.

Inhabits France and southern Italy.

DIVISION II.

Metathorax with the middle not elongated into a scutellum.

GENUS DLXVIII. EUCHRÆUS. Latreille.

CHRYSID. Fabricius, Jurine, Lepeletier.

Mandibles with one tooth on their internal edge. Abdomen semicylindric, elongate, the last segment with a transverse elevation, and a row of impressed dots.

Sp. 1. Purpuratus.

Chrysis purpurata. Fabricius.

Euchræus purpuratus. Latreille.

Inhabits France.

GENUS DLXIX. CHRYSID of authors.

VESPA. Geoffroy.

Mandibles with one tooth on their internal edges. Abdomen semicylindric, elongate; the last segment abruptly divided by an impression, with a transverse row of impressed dots.

Sp. 1. Ignita.

Chrysis ignita. Linn. Fabricius, &c.

GENUS DLXX. HEDYCHRUM. Latr. Panzer, Spin.

CHRYSID. Linn. Fabricius, Illiger, Lamarck, Lepeletier.

Mandibles bidentate on their internal edge. Abdomen semicircular, with the extremity rounded; all the segments united.

Sp. 1. Auratum.

Chrysis aurata. Fabricius.

SECTION II. ACULEATA.

Oviduct none. Sting or aculeus in the females having a communication with poisonous glands. Abdomen attached to the thorax in all by a part only of its transverse diameter.

DIVISION I.

Hinder feet not pollinigerous; their tarsi with the first joint cylindric, not much larger than the others, nor much compressed. Larvæ omnivorous.

Subdivision 1.

Ocelli or stemmata not distinct. Wings often wanting in the females and neuters.

TRIBE I. FORMICARIDES.*

Abdomen with a peduncle abruptly formed, with a scale on two knots. Antennæ thicker towards their extremities, the first joint very long, more so in the females and neuters. Labrum large, perpendicular, corneous.

Obs. These insects live in societies consisting of vast numbers. The males and the females are furnished with wings, the neuters being apterous.

GENUS DLXXI. FORMICA of authors.

LASIUS. Fabricius.

Peduncle of the abdomen formed of one simple scale. Sting not punctorious. Poisonous glands in the females and neuters. Antennæ inserted in the front.

Sp. 1. Herculeana.

Formica herculeana. Latreille.

Inhabits the European woods, building a large nest with bits of sticks.

GENUS DLXXII. POLYERGUS. Latreille, Spinoli.

FORMICA. Jurine.

Peduncle of the abdomen formed of but one simple scale. Sting not punctorious. Poisonous glands in the females and neuters. Antennæ inserted near the mouth.

Sp. 1. Rufescens.

Polyergus rufescens. Latreille.

GENUS DLXXIII. PONERA. Latreille, Illiger.

FORMICA. Linn. Fabr. De Geer, Olivier.

Peduncle of the abdomen formed of one scale or knot. Sting in females and the neuters.

* Mandibles of the neuters narrow, elongate, cheliform.

GENUS ODONTOMACHUS of Latreille's old works. MYRMECIA, Fabricius.

Sp. 1. Chelifera.

Ponera chelifera. Latreille.

** Mandibles of the neuters broad and triangular.

GENUS PONERA of Latreille's older works.

Sp. 2. Crassinoda.

Formica crassinoda. Fabricius.

Ponera crassinoda. Latreille.

GENUS DLXXIV. ATTA. Fabr. Illig. Jur. Latr.

FORMICA. Linn. Fabricius, Villers.

Peduncle of the abdomen formed of two knots. Sting in the females and the neuters. Antennæ entirely exerted. Palpi very short; maxillary ones with six distinct joints. Head of the neuters very large.

* Mandibles of the neuters very narrow, and much elongated.

GENUS ECITON of Latreille's older works; MYRMECIA, Fabricius.

Sp. 1. Hamata.

Myrmecia hamata. Fabricius.

Atta hamata. Latreille.

** Mandibles of the neuters elongate-trigonal, much denticulated.

FORMICA of Latreille's older works; ATTA, Fabr.

Sp. 2. Cephalotes.

Atta cephalotes. Latreille, Fabricius.

*** Mandibles of the neuters short, trigonal, scarcely denticulated.

GENUS FORMICA of Latreille's older works, and of Fabricius.

Sp. 3. Capitata.

Atta capitata. Latreille.

GENUS DLXXV. MYRMICA. Latr. Spinoli.

FORMICA. Linn. Geoffroy, Panzer, Illiger.

MANICA. Jurine.

MYRMECIA. Fabricius.

Peduncle of the abdomen formed of two knots. Antennæ entirely exerted. Maxillary palpi long; six-jointed. Neuters and females armed with stings.

* Mandibles very narrow, very long: Antennæ filiform.

Sp. 1. Forficata.

Myrmecia forficata. Fabr.

Myrmica forficata. Latr.

** Mandibles trigonate, but little elongate: Antennæ thicker towards their extremities.

a. Superior wings with three submarginal cells; the first and second perfect.

Sp. 2. Subterranea.

Myrmica subterranea. Latr.

b. Superior wings with two submarginal cells; the first perfect.

Sp. 3. Fugax.

Myrmica fugax. Latreille.

GENUS DLXXVI. CRYPTOCERUS. Latr. Fabr. Illiger.

FORMICA. Linn. Olivier.

MANICA. Jurine.

Peduncle of the abdomen formed of two knots. Antennæ with the first joint lodged in a lateral ridge of the head. Neuters and females armed with a sting.

Sp. 1. Atratus.

Cryptocerus atratus. Latr.

TRIBE II. MUTILLARIDES.

Antennæ filiform, vibratous, the first and third joints elongate.

The insects of this family are solitary. The males are winged, the females apterous, and there are no neuters.

FAMILY I. Dorytida.

Antennæ inserted at the mouth, the first joint very long. Head small. Abdomen cylindric, having the first joint nearly trigonate, with the superior sides more elevated, or transverse; rounded above, and separated from the following joint by an incision. Tibiæ slender, not spinose.

GENUS DLXXVII. LABIDUS. Latreille, Jurine.

Abdomen with the first segment nearly trigonate, with the sides elevated like a horse's shoe. Superior wings with three submarginal cells.

Sp. 1. Latreillii.

Labidus Latreille. Jurine.

Dorylus medius of Fabricius is probably to be referred to this genus.

GENUS DLXXVIII. DORYLUS.† Fabricius, Jurine, Illiger, Olivier, Latreille.

Abdomen with the first segment transverse, rounded above, and separated from the following joint by an incision. Superior wings with two submarginal cells.

Sp. 1. Helvotus.

Dorylus helvotus. Fabricius, Latreille.

FAMILY II. Mutillida.

Antennæ inserted in the middle of the face. Head large. Abdomen somewhat conic or ovoid. Tibiæ spinose.

* Huber has written a work on the economy of these animals.

† The males only of this and the preceding genus are known; the females are supposed to be apterous and solitary.

DIVISION I.

Abdomen with the two first segments nodiform. Superior wings with one submarginal cell.

GENUS DLXXXIX. *APTEROGYNA*. Latreille.

Antennæ setaceous, of the male as long as the body, of the females a little shorter. Mandibles arcuate. Maxillary palpi long.

Sp. 1. Olivierii.

Apterogyna Olivierii. Latr.

Inhabits Arabia.

DIVISION II.

Abdomen with the first segment of the abdomen nodiform. Superior wings with three submarginal cells.

Subdivision 1.

Maxillary palpi as long or longer than the maxillæ. Antennæ longer than the head, the first joint not receiving the second.

GENUS DLXXX. *MUTILLA*. Linn. Fabricius, Panz. Jur. Illig. Spinoli.

Spheg. De Geer.

Apis. Christus, Harris.

Abdomen (of both sexes) ovoid and convex, the second segment large, somewhat campanulated. Thorax of the females cubical, with no transverse sutures.

Sp. 1. Europhæa.

Mutilla Europhæa. Linn. Fabr. Panz. Latr.

Apis with no wings!! of Harris.

Inhabits Europe.

GENUS DLXXXI. *METHOCA*. Latreille.

MUTILLA. Jurine.

Abdomen (of the females) ovoid and convex, with the second segment large. Thorax composed of three segments, nodose.

Sp. 1. Ichneumonoides.

Methoca Ichneumonoides. Latr.

GENUS DLXXXII. *MYRMOSEA*. Latr. Jur. Panz.

MUTILLA. Rossi.

HYLÆUS. Fabricius.

Abdomen depressed, elliptic in the males, conic in the females. Thorax composed of two segments, the anterior segment transverse.

Sp. 1. Melanocephala.

Myrmosea melanocephala. Latr.

Inhabits Europe.

GENUS DLXXXIII. *SCHLERODERMUS*. Klug. Latr.

Abdomen of the females conic. Thorax divided into three segments by two transverse sutures, the hinder one elongate.

Sp. 1. Domesticus.

Schlerodermus domesticus. Klug. Latreille.

Subdivision 2.

Maxillary palpi shorter than the maxillæ. Antennæ slender, longer than the head; the first segment receiving the second.

GENUS DLXXXIV. *MYRMECODES*. Latreille.

TIPHIA. Fabricius.

Mandibles porrected, arcuate, edentulous. Palpi very short, three or four-jointed, the last joint obsolete; labial palpi shorter, scarcely visible, somewhat conic; labial ones cylindric. Antennæ not much longer than the head. Thorax elongate-cubic, a little narrowed behind, composed of three segments meeting together, the first segment largest.

Sp. 1. Pedestris.

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Tiphia Pedestris. Fabricius.

Inhabits New Holland.

Subdivision 3.

Ocelli distinct, smooth. Wings never wanting.

TRIBE III. SCOLIDES.

Thorax with the first segment transverse quadrate, or forming an arc. Feet short, or moderately long; the hinder ones thick, spinulose, or strongly ciliated. Antennæ shorter than the head and trunk. Superior wings with the marginal cell detached from the apex; not doubled longitudinally.

FAMILY I. *Tiphida*.

Maxillary palpi long, with the joints very unequal. Antennæ with the first joint obconic.

GENUS DLXXXV. *TIPHIA*. Fabr. Panz. Illig. Jur. Spinoli.

Spheg. Scopoli, Christus.

Bethylus. Panzer.

Mandibles without teeth. Antennæ shorter than the thorax in both sexes. Abdomen ovate.

Sp. 1. Femorata.

Tiphia femorata. Fabr. Jur. Latr.

Bethylus femoratus. Panzer.

Inhabits Europe.

GENUS DLXXXVI. *TENGYRA*. Latr.

Mandibles with two teeth. Antennæ of the males almost as long as the body. Abdomen of the males very much elongated, almost linear.

Sp. 1. Sanvitali.

Tingyra sanvitali. Latreille.

Inhabits Italy.

FAMILY II. *Scolida*.

Maxillary palpi short, joints equal. Antennæ with the first joint long, nearly cylindric.

DIVISION I.

Thorax with the anterior segment transverse-quadrate, the hinder margin straight or but little arcuated.

GENUS DLXXXVII. *MIZINE*. Latr. Illig. Spinoli.

PLESIA. Jurine.

ELIS. Fabricius.

TIPHIA. Fabr. Panzer.

SAPHYA. Jurine, Panzer.

SCOLIA. Rossi.

Mandibles bidentate.

Sp. 1. Maculata.

Tiphia maculata. Fabricius.

Mizine maculata. Latreille.

Sp. 2. Volvulus.

Elis volvulus. Fabricius.

GENUS DLXXXVIII. *MERIA*. Illiger, Latreille.

BETHYLUS. Fabricius.

TIPHIA. Rossi.

TACHUS. Jurine, Spinoli.

Mandibles without teeth:

Sp. 1. Staphylinus.

Tachus staphylinus. Jurine.

Meria staphylinus. Latreille.

DIVISION II.

Thorax with the anterior segment much contracted in the middle, and very much arcuated behind.

GENUS DLXXXIX. *SCOLIA*. Latreille.

* Superior wings with three submarginal cells, the last small; and two perfect discoidal cells. Four hinder tibiae with acute spurs or heels.

Sp. 1. *Hororum*.

Scotia hororum. Fabricius, Latreille.

** Superior wings with three submarginal cells, the last small; and with three perfect discoidal cells. Hinder tibiae with the heels broader at their extremities, and rounded.

Sp. 2. *Interrupta*.

Elis interrupta. Fabricius.

*** Superior wings with two submarginal cells, the second receiving two recurrent nervures: Three perfect discoidal cells: Tibiae as in the last division.

Sp. 3. *Abdominalis*.

Scotia abdominalis. Latreille.

**** Superior wings with two submarginal cells, the second receiving one recurrent nervure; two perfect discoidal cells, and one imperfect below: Four hinder tibiae with acute heels.

Sp. 4. *Tridens*.

Scotia tridens. Fabricius.

TRIBE IV. SAPYGIDES.

Thorax with the first segment forming an arch, or a transverse square. Feet moderate, or short, slender, not strongly ciliated or spined. Antennae in both sexes as long as the head and the trunk. Superior wings with the marginal cell not remote; not folded longitudinally.

GENUS DXC. SAPYGA. Latr. Jur. Klug. Illig. Spino.

APIS. Linn.

VESPA. Geoffroy.

HELLUS. Fabricius, Panzer.

SPHEX. Villers.

Mandibles very strong, trigonate, many-toothed. Antennae thicker towards their extremities.

Sp. 1. *Sexfunktatus*.

Hellus sexfunktatus. Fabricius.

Inhabits Europe.

GENUS DXCI. POLYCHROM. Spinoli, Latreille.

Mandibles very strong, trigonate, many-toothed. Antennae filiform.

Sp. 1. *Rephandum*.

Polychrom rephandum. Spinoli, Latreille.

GENUS DXCII. THYNNUS. Fabricius, Salzer, Latreille, Jurine, Donovan.

Mandibles (of the males) narrow, bidentate, arcuate.

Antennae slender, nearly setaceous.

Sp. 1. *Dentatus*.

Thynnus dentatus. Fabr. Latr. Donovan.

Inhabits New Holland.

TRIBE V. POMPILIDES.

Thorax with the first segment forming an arch, or a transverse square. Feet long, the hinder ones as long as the head and trunk. Antennae slender, formed of elongate, and slightly serrated joints. Superior wings not folding longitudinally.

FAMILY I. *Pompilida*.

Superior wings with three submarginal cells complete.

GENUS DXCIII. PEPIS. Fabricius, Latreille.

POMPILUS. Jurine, Illiger.

Palpi equally long; the two last joints of the maxillary ones, and the last of the labial ones, shorter than the rest.

Sp. 1. *Stellata*.

Pepsis stellata. Fabricius, Latreille.

GENUS DXCIV. POMPILUS. Latreille.

Maxillary palpi longer than the labial ones, with the last joint thicker, conic-obovate; the three last joints nearly equally long. Labrum inserted under the clypeus. Antennae (of the females at least,) with their points convoluted.

Obs. This artificial genus contains the following genera, proposed by the most learned writers on the hymenopterous insects, viz. 1. POMPILUS, Fabr. Panzer, Jur. Illig. Walck. Spin. 2. SPHEX, Linn. Scop. Vill. Cuv. Lam. 3. IOHNEUMON, Geoff. 4. PEPIS, Fabr. 5. SALIUS, Fabr. 6. CRYPTOCHILUS, Panzer. With the rejected genus 7. PSAMMOCHARIS of Latreille.

Sp. 1. *Annulatus*.

Pompilus annulatus. Latr. Fabr.

Cryptochilus annulatus. Panzer.

Sp. 2. *Viaticus*.

Pompilus viaticus. Latr. Fabr. Panzer.

Sp. 3. *Bicolor*.

Salius bicolor. Fabricius.

Pompilus bicolor. Latreille.

Sp. 4. *Dispar*.

Pompilus dispar. Latreille.

Sp. 5. *Planiceps*.

Pompilus planiceps. Latreille.

GENUS DXCV. CEROPALES. Latr. Fabr. Jur. Panz. Spinoli.

EVANIA. Olivier, Villers, Rossi, Cuvier.

Maxillary palpi pendulous, longer than the maxillary ones; the three last joints equally long, the last joint thicker, conic-obovate. Labrum entirely exerted, entering to the anterior margin of the clypeus. Antennae (in both sexes) thick, rigid, with the middle arcuated, not convoluted.

Sp. 1. *Maculata*.

Ceropales maculata. Fabricius, Latreille.

FAMILY II. *Aphorida*.

Superior wings with two complete submarginal cells.

GENUS DXCVI. APORUS. Spinoli, Latreille.

Superior wings with the second submarginal cell receiving two recurrent nervures.

Sp. 1. *Unicolor*.

Aporus unicolor. Spinoli, Latreille.

TRIBE VI. SPHECIDES.

Thorax with the first segment transverse linear. Feet long; the hinder ones as long as the head and trunk. Ocelli distinct. Superior wings not folding longitudinally.

FAMILY I. *Sphécida*.

Mandibles with their internal edge denticulated.

GENUS DXCVII. AMOPHILA. Kirby, Latreille.

SPHEX. Linn. De Geer, Panzer, Lamarck, Cuvier, Jurine, Illiger, Spinoli.

PEPIS. Fabricius, Spinoli.

MISCUS. Jurine.

Antennae inserted about the middle of the face. Maxillae and labrum much longer than the head, bent in the middle. Palpi very slender, with cylindric joints.

* Abdomen twice the length of the thorax, with the petiolus gradually formed, elongate, and two-jointed.

a. Superior wings with the third submarginal cell not petiolated.

Sp. 1. *Armata*.

Sphex armata. Rossi.

Amophila armata. Latreille.

b. Superior wings with the third submarginal cell petiolated.

Sp. 2. Campestris.

Amophila campestris. Latreille.

Inhabits sandy places.

** Abdomen as long (scarcely longer) as the thorax, peduncle short, abrupt.

Sp. 3. Arenaria.

Pepsis arenaria. Fabricius.

Amophila arenaria. Latreille.

Inhabits sandy ground.

GENUS DXCVIII. SPHEX. Linn. Fabr. Cuvier, Lamarck, Jurine, Illiger.

ICHNEUMON. Geoffroy.

APIS. Linn.

PRO-APIS. De Geer.

PEPSIS. Fabricius, Spinola.

CHLORION. Fabricius.

Antennæ inserted about the middle of the face. Maxillæ and labrum scarcely longer than the head, and bent towards their extremities. Maxillary palpi with all the joints elongate and obconic.

Sp. 1. Flavipennis.

Pepsis flavipennis. Fabricius.

Sphex flavipennis. Latreille.

Obs. *Pepsis pennsylvanica*, and *Maxillosa*, with *Chlorion ichneumoneum* of Fabricius, are referable to this genus.

GENUS DXCIX. PRONEUS. Latreille.

DRYINUS. Fabricius.

PEPSIS. Palisot de Beauvois.

Antennæ inserted at the mouth, (at the base of the clypeus?) Maxillary palpi filiform, longer than the labial palpi. Maxillæ terminated by a lanceolate lobe. Lip with the intermediate division elongate.

Sp. 1. Æneus.

Dryinus æneus. Fabricius.

Proneus æneus. Latreille.

GENUS DC. CHLORION. Latr. Fabricius, Panzer.

SPHEX. Christus, Cuvier.

PEPSIS. Illiger.

AMPULEX. Jurine.

Antennæ inserted at the mouth, (at the base of the clypeus?) Maxillary palpi filiform, longer than the labial ones. Maxillæ terminated by a short lobe. Lip with the divisions short, as if quadriplate.

Sp. 1. Lobatum.

Chlorion lobatum. Fabr. Latr.

GENUS DCI. DOLICHURUS. Latreille.

PISON. Jurine.

POMPILUS. Spinola.

Antennæ inserted at the mouth, (at the base of the clypeus?) Maxillary palpi setaceous, longer than the labial ones.

Sp. 1. Ater.

Pompilus corniculatus. Spinola.

Dolichurus ater. Latreille.

FAMILY II. *Pelopidea*.

Mandibles without teeth on their internal edges.

GENUS DCII. PODIUM. Fabricius, Latreille.

Antennæ inserted below the middle of the face. Clypeus broader than long. Maxillæ entirely coriaceous. Palpi nearly of equal length.

Sp. 1. Rufipes.

Podium rufipes. Fabr. Latr.

GENUS DCIII. PELOPEUS. Latr. Fabr. Panz. Spinola.

PEPSIS. Illiger.

SCELIPHRON. Klug.

SPHEX. Linn. Cuvier, Lamarck, Jurine.

Antennæ inserted at the middle of the face. Clypeus with nearly equal diameters. Maxillæ with their extremities partly membranaceous. Maxillary palpi longer than the labial ones.

Sp. 1. Spirifex.

Sphex spirifex. Linn.

Pelophæus spirifex. Latreille.

Sp. 2. Destillatorius.

Sphex spirifex. Panzer (*Faun. Ins. Germ.*)

Pelophæus destillatorius. Latreille.

Sp. 3. Pensilis.

Pelophæus pensilis. Latreille.

Sp. 4. Tubifex.

Pelophæus tubifex. Latreille.

Obs. The above four species are often confounded under the title of *Sphex spirifex* of Linnæus.

TRIBE VII. BEMBEDICES.

Thorax with the first segment transverse, linear. Feet short or moderately long. Labrum entirely exerted, very large. Ocelli very distinct. Superior wings not folded longitudinally.

GENUS DCIV. BEMBEX. Fabricius, Olivier, Rossi, Cuvier, Lamarck, Panzer, Jurine, Illiger, Spinola.

APIS. Linn. Villers, Christus.

VESPA. Sulzer.

Labrum elongate triangular. Mandibles simply unidentate on their internal edge. Maxillary palpi very short, four jointed. Superior wings with their marginal and the last submarginal cell almost meeting at their extremity, separated only by a very short angle.

Sp. 1. Rostrata.

Bembex rostrata. Fabricius, Panzer, Latreille.

Inhabits Germany.

GENUS DCV. MONEDULA. Latreille, Panzer.

VESPA. Linn. De Geer.

BEMBEX. Olivier, Jurine.

STICTIA. Illiger.

Labrum elongate-triangular. Mandibles with two or three denticles on their internal edge. Maxillary palpi as long as the maxillæ, composed of six joints. Superior wings with the marginal and last submarginal cells divided by a very distinct space.

Sp. 1. Carolina.

Bembex carolina. Fabricius.

Monedula carolina. Latreille.

GENUS DCVI. STIZUS. Latr. Jurine, Spinola.

BEMBEX. Olivier, Fabricius.

CRABRO. Rossi, Fabricius.

LARRA. Illiger, Fabricius.

SPHEX. Villers.

MELLINUS. Panzer.

LIRIS. Fabricius.

SCOLIA. Fabricius.

Labrum short, semicircular. Palpi filiform, maxillary ones longer, six-jointed; labial ones four-jointed.

Sp. 1. Ruficornis.

Larra ruficornis. Fabricius.

Monedula ruficornis. Latreille.

TRIBE VIII. LARRIDES.

Thorax with the first segment transverse-linear. Feet short or moderately long. Labrum entirely concealed, or but very obscure. Eyes elongate, reaching the hinder margin. Ocelli very distinct. Antennæ inserted near the mouth; the first joint obovoid, or in-

serted in the middle of the face. Superior wings not folding longitudinally.

FAMILY I. *Larrida*.

Superior wings with two or three submarginal cells complete.

DIVISION I.

Eyes entire, not emarginate. Mandibles without an emargination on their internal edge.

Subdivision 1.

Antennæ thicker externally. Eyes separate.

GENUS DCVII. *GORYTES*. Latreille, Illiger, Spin.

MELLINUS. Fabricius, Walckenaer.

VESPA. Linn. Geoffroy.

SPHEX. Rossi.

ARPACTUS. Jurine, Panzer.

OXYBELUS. Fabricius.

Antennæ inserted below the middle of the face. Mandibles unidentate. Superior wings with the second submarginal cell sessile.

Sp. 1. *Quinguecinctus*.

Gorytes quinguecinctus. Latreille.

GENUS DCVIII. *NYSSON*. Latreille, Jurine, Panzer, Illiger, Spinola.

CRABRO. Fabr. Olivier, Rossi.

OXYBELUS. Fabricius.

POMFILUS. Fabr.

MELLINUS. Fabr.

SPHEX. Villers.

Antennæ inserted below the middle of the face. Mandibles without teeth. Superior wings with the second submarginal cell petiolated.

Sp. 1. *Spinosus*.

Nysson spinosus. Latreille.

GENUS DCIX. *PSEN*. Latr. Jurine, Panzer, Illiger, Spinola.

PELOPEUS. Fabr.

TRYPOXYLON. Fabr.

Antennæ inserted in the middle of the face, towards the front. Abdomen with the peduncle abrupt and short.

Sp. 1. *Ater*.

Psen ater. Latreille.

Trypoxylon atratum. Fabr.

Inhabits Europe.

Subdivision 2.

Eyes meeting behind. Antennæ filiform.

GENUS DCX. *ASTATA*. Latr. Spinola.

SPHEX. Villers, Rossi.

DIMORPHA. Jurine, Panzer, Illiger.

Antennæ inserted towards the mouth, at the base of the clypeus.

DIVISION II.

Eyes entire, not emarginate. Mandibles emarginate on their internal edge.

Subdivision 1.

Superior wings with three submarginal cells.

GENUS DCXI. *PALARUS*. Latreille.

GONIUS. Jurine, Panzer.

PHILANTHUS. Fabr.

CRABRO. Rossi.

Antennæ very short, thicker towards their tips. Clypeus divided into three parts by two impressed lines.

Superior wings with the second submarginal cell petiolated.

Sp. 1. *Flavipes*.

Palarus flavipes. Latr.

Philanthus flavipes. Fabr.

GENUS DCXII. *LARRA*. Fabricius, Olivier, Jurine, Panzer, Spinola, Latreille.

LIRIS. Fabricius, Illiger.

SPHEX. Villers, Rossi.

Antennæ filiform. Superior wings with the third submarginal cell narrow, almost lunate. Mandibles without a tooth-like process on their internal edge.

Sp. 1. *Ichneumoniformis*.

Larra ichneumoniformis. Panzer, Fabr. Latr.

GENUS DCXIII. *LYROPS*. Illiger, Latreille.

TACHYTES. Panzer.

LARRA. Fabricius, Jurine.

LIRIS. Fabr.

ANDRENA. Rossi.

Antennæ filiform. Superior wings with the third submarginal cell narrow, almost lunate. Mandibles with a strong tooth on their internal edge.

Sp. 1. *Tricolor*.

Larra tricolor. Fabr.

Tachytes tricolor. Panzer.

Inhabits Germany.

Subdivision 2.

Superior wings with two submarginal cells.

GENUS DCXIV. *DINETUS*. Jurine, Panzer, Illiger, Latreille.

SPHEX. Schaeffer.

POMFILUS. Fabricius.

CRABRO. Rossi.

Antennæ, (of the males,) moniliform, terminated by elongate, cylindric joints, convoluted in the middle. Mandibles acutely unidentate on their internal edge. Superior wings with the marginal cell appendiculated; the two submarginal cells sessile.

Sp. 1. *Pictus*.

Dinetus pictus. Jurine, Panzer, Latreille.

GENUS DCXV. *MISCOPHUS*. Jurine, Latreille.

Antennæ with the joints alike in both sexes. Mandibles without distinct teeth. Superior wings with the second submarginal cell petiolated.

Sp. 1. *Bicolor*.

Miscophus bicolor. Jurine, Latreille.

Inhabits France.

DIVISION III.

Eyes notched.

GENUS DCXVI. *PISON*. Jurine, Latreille.

TACHYBULUS. Latreille's older works.

ALYSON. Spinola.

Superior wings with three distinct submarginal cells. Abdomen conic, with a very short, almost imperceptible peduncle.

Sp. 1. *Ater*.

Pison niger. Latreille.

Alyson ater. Spinola.

Tachybulus ater. Latr. Gen. Crust. et Ins. 4. p. 75.

GENUS DCXVII. *TRYPOXYLON*. Latreille, Fabricius, Panzer, Illiger, Spinola.

SPHEX. Linnæus, Vill. Cuv. Rossi, Christus.

APIUS. Jurine.

Superior wings with three submarginal perfect cells; the first distinct, receiving a recurrent nerve; the second obsolete, much smaller, receiving another ner-

veur; the third also obsolete, terminal. Abdomen long and gradually pedunculated.

FAMILY I. *Oxybellida*.

Superior wings with one complete submarginal cell.
GENUS DCXVIII. *NITELA*. Latreille.

Antennæ filiform nearly straight, longer than the head, the second and third joints nearly of equal length. Mandibles bidentate at their extremities. Tibiæ not spinose. Tarsi with small *pulvilli*.

Sp. 1. Spinola.

Nitela Spinola. Latreille.

Inhabits the south of France.

GENUS DCXIX. *OXYBELUS*. Latreille, Fabricius, Panzer, Jurine, Illiger, Spinola.

VESPA. Linnaeus, Villers, Christus.

SPHEX. Schaeffer.

CRABRO. Olivier, Rossi.

Antennæ thicker towards their extremities, longer than the head, convoluted, the second joint much shorter than the third. Mandibles without teeth at their extremities. Tibiæ spinose. Tarsi with large *pulvilli*.

Sp. 1. Uniglumis.

Vespa uniglumis. Linn.

Oxybelus uniglumis. Fabricius, Latreille.

Inhabits Europe.

TRIBE IX. CRABRONIDES.

Thorax with the first segment transverse-linear. Feet short, or moderately long. Labrum entirely concealed or but obscure. Eyes not reaching the hinder part of the head. Ocelli very distinct. Superior wings not folded longitudinally. Antennæ inserted at the mouth, with the first joint cylindric or conic, or towards the middle of the face.

FAMILY I. *Crabronida*.

Superior wings with one or two complete submarginal cells.

DIVISION I.

Mandibles with their extremities bifid. Superior wings with but one recurrent nerveur.

GENUS DCXX. *CRABRO*. Fabricius, Olivier, Rossi, Jurine, Panzer, Illiger, Spinola.

SPHEX. Linn. Villers.

VESPA. Linn. Geoffroy.

PEMPHREDON. Fabricius, Spinola.

Antennæ with the first joint long and cylindric. Superior wings with one complete submarginal cell.

Sp. 1. Cribrarius.

Crabro cribrarius. Fabricius, Latreille.

Inhabits Europe.

Sp. 2. Subterraneus.

Crabro subterraneus. Fabricius, Latreille.

Inhabits Europe.

Sp. 3. Tibialis.

Pemphredon tibialis. Fabricius.

Inhabits Europe.

Obs. These three species may be considered as the types of as many genera.

GENUS DCXXI. *STIGMUS*. Jurine, Panzer, Illiger, Spinola, Latreille.

Antennæ with the first joint obconic. Superior wings with two complete submarginal cells; and two discoidal cells.

Sp. 1. Ater.

Stigmus ater. Jurine, Latreille.

GENUS DCXXII. *CEMONUS*. Jurine.

PSEN. Panzer.

PEMPHREDON. Fabricius.

STIGMUS. Latreille.

Antennæ with the first joint obconic. Superior wings with two complete submarginal, and three discoidal cells.

Sp. 1. Minutus.

Pemphredon minutus. Fabricius.

Psen pallipes. Panzer.

Cemonus minutus. Jurine.

Stigmus minutus. Latreille.

Inhabits Europe.

DIVISION II.

Mandibles strong, many-toothed. Superior wings with two recurrent nerveurs.

GENUS DCXXIII. *PEMPHREDON*. Latreille, Fabricius, Spinola.

CEMONUS. Jurine, Panzer, Illiger.

Superior wings with the submarginal cell not narrower towards the apex. Antennæ with the first joint longest, thickest.

Sp. 1. Unicolor.

Pemphredon unicolor. Latreille.

Cemonus unicolor. Jurine.

Inhabits Europe.

FAMILY II. *Mellinida*.

Superior wings with three complete submarginal cells.

DIVISION I.

Antennæ inserted at the mouth, filiform. Clypeus not trilobate.

GENUS DCXXIV. *MELLINUS*. Fabricius, Panzer, Jurine, Illiger, Spinola.

SPHEX. De Geer, Cuvier, Villers.

VESPA. Linn. Rossi, Harris.

Superior wings with all the submarginal cells sessile. Abdomen distinctly pedunculated. Tarsi terminated by a thick joint, bearing a large *pulvillus*.

Sp. 1. Ruficornis.

Mellinus ruficornis. Fabr. Panzer, Latreille.

Inhabits Europe.

GENUS DCXXV. *ALYSON*. Jurine, Panz. Latr.

POMFILUS. Fabricius.

Superior wings with the second submarginal cell petiolated. Abdomen with a short peduncle. Tarsi with a small *pulvillus*.

Sp. 1. Lunicornis.

Pomphilus lunicornis. Fabricius.

Alyson lunicornis. Panzer, Latreille.

Inhabits Europe.

DIVISION II.

Antennæ thicker towards their extremities, inserted about the middle of the face. Clypeus trilobate.

GENUS DCXXVI. *CERCERIS*. Latr. Illig. Spinola.

SPHEX. Schaeffer, Villers, Rossi.

VESPA. Geoffroy, Olivier, Harris.

PHILANTHUS. Fabricius, Jurine, Panzer.

BEMBEX. Rossi.

CRABRO. Rossi.

Antennæ gradually thicker externally, very much approximating at their base, almost as long as the thorax, the third joint somewhat cylindric. Mandibles with a tooth in their internal edge. Superior wings with the second submarginal cell petiolated.

Sp. 1. Major.

Cerceris major. Spinola, Latreille.

Sp. 1. Quadricinctus.

Philanthus quadricinctus. Fabricius, Panzer.

Inhabits Europe.

GENUS DCXXVII. *PHILANTHUS*. Fabr. Panzer, Illiger, Jurine, Spinola, Latreille.

VESPA. Geoffroy, Villers.

SPHEX. Schaffer.

CRAPO. Rossi.

SIMBLEPHILUS. Jurine.

Antennæ distant, abruptly thicker towards their extremities. Mandibles without any process in their internal edge. Superior wings with all the submarginal cells sessile.

Sp. 1. Coronatus.

Philanthus coronatus. Fabricius, Panzer, Latreille.

Inhabits Europe.

TRIBE X. VESPIDES.

Superior wings folded longitudinally. Thorax, with the first segment forming an arc, prolonged behind even to the origin of the superior wings. Antennæ twelve-jointed, with their extremities pointed. Lip with three glandiferous divisions, or with four long plumose setæ.

FAMILY I. *Eumenida*.

(Solitary wasps.)

Mandibles longer than broad, anteriorly meeting like a rostrum. Lip with the intermediate division narrow, and very long. Clypeus cordiform, with the point projected, and more or less truncated.

DIVISION I.

Lip without glands at their extremity, divided into four very long linear and plumose divisions. Mandibles of the male very large.

GENUS DCXXVIII. *SYNAGRIS*. Latreille, Fabricius.

VESPA. Olivier, Jurine.

Palpi four-jointed; maxillary ones very short, labial ones longest. Abdomen ovate-conic, the two anterior segments not coarctate.

Sp. 1. Cornuta.

Synagris cornuta. Fabricius, Latreille.

DIVISION II.

Lip having four glandular points at its extremity, parted into three pieces, the middle one large, and bifid or notched at its extremity.

Subdivision 1.

Superior wings doubled, three submarginal cells complete. Maxillary palpi six-jointed, not very much shorter than the labial ones.

GENUS DCXXIX. *RYGCHIUM*. Spinola.

ODYNERUS. Latreille.

VESPA. Fabricius.

Abdomen ovoid-conic, the first segment not, or scarcely, narrower than the second. Maxillary palpi, with the last joint scarcely longer than the terminal process of the maxillæ; labial palpi smooth, the last joint distinct, the first evidently longer than the second. Maxillæ with their process very long and narrow.

Sp. 1. Europæum.

Rygchium Europæum. Spinola.

Vespa oculata. Fabricius.

Odynerus Europæus. Latreille.

Inhabits Europe.

GENUS CCXXX. *PTEROCHILUS*. Klug. Panzer.

ODYNERUS. Latreille.

VESPA. Panzer.

Abdomen ovoid-conic. Labium very long. Maxillary palpi, with the last joint not extending beyond the extremity of the maxillæ; labial palpi hairy, the fourth joint obtuse, scarcely visible. Maxillæ with the terminal lobe narrow and long.

Sp. 1. Phaleratus.

Pterochilus phaleratus. Klug.

Vespa phalerata. Panzer.

Odynerus phaleratus. Latreille.

Inhabits Europe.

GENUS DCXXXI. *ODYNERUS*. Latreille.

VESPA. Panzer, Fabricius.

Abdomen ovoid-conic, the second segment broader than the first. Maxillary palpi, with two or three of the joints extending beyond the extremity of the maxillæ. Maxillæ with the terminal lobe short, short-lance shaped.

Sp. 1. Spinifex.

Vespa spinifex. Panzer, Fabricius.

Odynerus spinifex. Latreille.

Inhabits Europe.

GENUS DCXXXII. *EUMENES*. Latreille, Fabricius.

Abdomen with the first segment contracted into an elongate peduncle, the second segment campanulate. Clypeus longitudinal, anteriorly produced into a point. Mandibles forming by their junction a long-pointed rostrum.

Sp. 1. Coarctata.

Eumenes coarctata. Fabricius, Latreille.

Inhabits Europe.

GENUS DCXXXIII. *ZETHUS*. Fabricius, Latreille.

Clypeus as broad, or broader than long, without any remarkable production in front. Maxillary palpi shorter than the maxillæ.

Sp. 1. Caruleo-fennis.

Zethus caruleo-fennis. Latreille, Fabricius.

GENUS DCXXXIV. *DISCÆLIUS*. Latreille.

VESPA. Panzer.

Clypeus as broad, or broader than long, without any remarkable protuberance before. Maxillary palpi longer than the maxillæ.

Sp. 1. Zonalis.

Vespa zonalis. Panzer.

Discælius zonalis. Latr.

Inhabits Europe.

Subdivision 2.

Superior wings extended, two submarginal cells complete. Maxillary palpi with less than six joints, shorter than the labial ones.

GENUS DCXXXV. *CERAMIUS*. Latreille.

Sp. 1. Fonscolumbii.

Ceramius Fonscolumbii. Latreille.

FAMILY II. *Vespidæ*.

(Social wasps.)

Mandibles longer than broad, long-quadrate, with their extremities obliquely truncated. Clypeus almost-quadrate. Lip with the intermediate division a little lengthened, cordiform.

GENUS DCXXXVI. *POLISTES*. Latreille, Fabricius, Illiger, Spinola.

VESPA. Linnæus, Geoffroy, Panzer, Jurine.

Mandibles (at least of the females and neuters) with their internal edge armed with three equal teeth, the

upper one shorter, emarginated, acute or obtuse. Clypeus, with the middle of the anterior margin, produced into a little acute entire tooth. Abdomen oval or elliptic, in many with a long peduncle.

Sp. 1. Gallica.

Polistes gallica. Fabricius, Latreille.

Inhabits Europe.

GENUS DCXXXVII. *VESPA* of authors.

Mandibles (at least of the females and neuters) with the second tooth much broader than the two under ones, the upper one obtuse. Clypeus with the anterior margin broadly truncate, and somewhat emarginate, with a tooth on each side. Abdomen ovoid-conic, with the base abruptly truncated, and very shortly pedunculated.

Sp. 1. Crabro. (Hornet.)

Vespa crabro. Linnæus, Fabricius, Latreille, &c.

Inhabits Europe, building its nest in hollow trees.

Sp. 2. Vulgaris. (Common wasp.)

Vespa vulgaris. Linnæus, Fabricius, &c.

Inhabits Europe, building its nest in holes under ground.

Sp. 3. Britannica.

Vespa Britannica. Leach, *Zool. Mis.*

Inhabits Britain, and builds a nest suspended from trees.

TRIBE XI. MASARIDES.

Superior wings doubled longitudinally. Thorax with the first segment forming an arc, prolonged behind even to the base of the superior wings. Antennæ eight-jointed or more, terminated by a club. Lip without any glandular points, long, filiform, tubulose, beneath with two linear elongate laciniae.

GENUS DCXXXVIII. *MASARIS.* Fabricius, Latr.

Antennæ (of the male) as long as the head and trunk, eight-jointed, the last joint thicker, obconic. Abdomen much elongated.

Sp. 1. Vestiformis.

Masaris vestiformis. Fabricius, Latreille.

Inhabits Barbary.

GENUS DCXXXIX. *CHELONITES.* Latreille, Fabricius, Illiger, Spinola, Panzer.

Masaris. Jurine, Cuvier, Lamarck.

Chrysis. Rossi.

Vespa. Villers.

Cimbex. Oliv.

Antennæ eight-jointed, longer than the head, the eighth joint with the following joints forming an obconic club. Abdomen a little longer than the trunk.

Sp. 1. Apiformis.

Chelonites apiformis. Fabricius, Panzer, Latreille.

Masaris apiformis. Jurine.

Vespa abbreviata. Villers.

Cimbex vespiformis. Olivier.

Inhabits Italy and the south of France.

DIVISION II.

Hinder feet pollenigerous; their tarsi, with the first joint, very large, and compressed, elongate-quadrate, or obtrigonal. Larvæ pollenivorous.

TRIBE XII. ANDRENIDES.

Lip with the apex subcordate or subhastate, on each side with one auricle; nearly straight, or slightly incurved in some, reflexed in others, shorter than the sheathing tube. Palpi alike.

FAMILY I. *Prosoptida.*

Lip with the apex dilated, somewhat cordiform.

GENUS DCXL. *COLLETES.* Latreille, Illiger, Spinoli, Klug.

Apis. Linnæus, Olivier, Villers.

Andrena. Fabricius, Jurine.

Hyleus. Cuvier.

Evodia. Panzer.

Melitta. * a. Kirby.

Hinder feet pollenigerous. Superior wings with three submarginal cells. Antennæ with the third joint longer than the second. Abdomen much elongated, more or less villose. Ocelli forming a curved line. Tongue obtuse, the apex bilobate.

The shape of the tongue is admirably adapted for the construction of its cells, which are described by the accurate Reaumur in the fifth memoir of his sixth volume, "*dont les nids sont faits d'especes de membranes soyeuses.*" According to this author, they make their nests in the earth that fills the cavities of certain stone walls. Some of them choose a northern aspect sheltered by trees. These nests are cylindrical, and consist of from two to four cells placed end to end, each of which is formed like a thimble, the end of one fitting into the other. The cells vary in size. The cylinder runs in a horizontal direction; but sometimes, from the intervention of a stone or of some other obstacle, it takes a different course, so that the last cell forms an angle with the first. The cells are composed of many layers of a very thin and transparent membrane, and the colour is generally reddish brown, which arises from the substance with which they are constructed. This is sometimes nearly liquid, at others it is merely a paste composed of pollen and honey. The larva, when hatched, very soon imbibes all that is liquid, and when full grown quite fills its cell. The substance with which they form their cells has not been ascertained, but Reaumur conjectures it to be a secretion from the insect.

Sp. 1. Succincta.

Colletes succincta. Latreille.

Melitta succincta. Kirby.

Evodia calendarum. Panzer.

Andrena succincta. Fabricius.

Inhabits Europe.

Sp. 2. Fodiens.

Colletes fodiens. Latr.

Melitta fodiens. Kirby.

Inhabits Europe.

GENUS DCXLI. *PROSOPTIS.* Jurine, Fabricius, Illiger, Panzer, Spinoli, Klug.

Hyleus. Latreille, Cuvier, Walckenaer.

Apis. Linn. Geoff.

Andrena. Olivier.

Vespa. Rossi.

Hinder feet not pollenigerous. Superior wings with two submarginal cells. Antennæ with the second and third joints nearly equally long. Abdomen conic, gibbous above. Tongue obtuse, the apex truncated, on each side auriculated. Ocelli placed in a triangle.

Obs. The insects of this genus, when pressed between the fingers, emit an agreeable odour.

FAMILY II. *Andrenida.*

Lip with the intermediate process lanceolate, acute.

DIVISION I.

Lip when at rest reflexed.

Subdivision 1.

Superior wings with two submarginal cells.

GENUS DCXLII. *DASYPODA.* Latreille, Fabricius, Panzer, Illiger, Spinola, Klug.

ANDRENA. Rossi.

APIS. Christus.

TRACHUSA. Jurine.

MELITTA. Kirby. Maxillæ inflexed at their middle, or below, their terminal process triangular-lanceolate, and longer than their palpi. Hinder feet, with the first joint of their tarsi as long, or longer than the tibiae.

Sp. 1. *Hirtipes*.

Dasyhoda hirtipes. Fabricius, Panzer, Latreille.

Inhabits Europe.

Sp. 2. *Plumifex*.

Dasyhoda plumifex. Panzer.

Melitta Swammerdamella. Kirby.

Inhabits Europe. It was first noticed by the illustrious Swammerdam. They burrow in sandy soil, throwing up a heap of sand without their hole.

Subdivision 2.

Superior wings with three submarginal cells, the second small.

GENUS DCXLIII. ANDRENA. Fabricius, Panzer, Jurine, Illiger, Spinola, Klug.

APIS. Linnæus, Villers.

MELITTA. ** c. Kirby.

Maxillæ bent at their extremity, their terminal lobe scarcely longer than broad. Hinder feet, with the first joint of their tarsi shorter than the tibiae. Labium or lip little elongate, shorter than its palpi.

The species of this genus are extremely numerous, and a very large portion of them inhabit Britain. Their proboscis is downy and thick. The hinder legs of the male are furnished with a flocculus at their base, the tibiae with a thick scopa or brush, and their anus is covered by a fringe of hairs. They nidificate under ground in a light soil, some choosing banks over which bushes are scattered, others bare perpendicular sections, but all seem to prefer a southern aspect. They excavate burrows of a cylindric form, from five inches to nearly a foot or more in depth, of such a diameter only as to admit the insect. In making these holes, they remove the earth grain by grain, which they throw up on the outside of their holes in the form of a hillock. Some species penetrate in a horizontal, and others in a perpendicular direction. They construct a cell at the bottom of this hole, which they replenish with pollen made into a paste with honey, and in this they deposit their eggs. The pollen they carry in the scopa or brush of their hinder tibiae, upon the flocculus at the base of the hinder thighs, and on the hairs of the metathorax. When the female has committed her egg to the paste, she very carefully stops the mouth of her hole, to prevent the ingress of ants, or of other insects who might be enemies to the larva.

GENUS DCXLIV. CILISSA. Leach's MSS.

MELITTA. Kirby.

ANDRENA. Latreille, Panzer.

Maxillæ bent near their middle, the terminal process very much longer than broad. Lip elongate, longer than its palpi. Superior wings with three submarginal cells, the second small.

This genus is not only distinguished from *Andrena* by the characters of the lip and maxillæ, but also by having a longer tongue with very minute auricles, and the tops of the valves cultriform.

Sp. 1. *Tricincta*.

Melitta tricincta. Kirby.

Andrena tricincta. Latreille.

Cilissa tricincta. Leach's MSS.

Inhabits England.

Sp. 2. *Hemorrhoidalis*.

Andrena hemorrhoidalis. Panzer.

Melitta chrysaurea. Kirby.

Inhabits Germany and England.

DIVISION II.

Lip with the intermediate division incurved, or nearly straight. Superior wings in all with three complete submarginal cells.

Subdivision 1.

Lip with the intermediate division nearly straight, not twice the length of the head.

GENUS DCXLV. SPHECODES. Latreille.

SPHEX. Linnæus, Villers, Rossi.

APIS. Geoffroy.

PROAPIS. De Geer.

NOMADA. Fabricius.

ANDRENA. Olivier, Panzer, Jurine, Spinola.

DICHROA. Illiger, Klug.

MELITTA. ** a. Kirby.

Labrum trigonate, of the male entire, of the female generally emarginate. Antennæ of the males long, almost moniliform, arcuated. Abdomen with the greater portion smooth.

The species of *Sphécodes* at first sight, bear a near resemblance to *Sphex*. They make their nests in bare sections of banks exposed to the sun, and nearly vertical. According to Reaumur, they excavate to the depth of nine or ten inches, and deposit their eggs in a mass of pine mixed with honey.

Sp. 1. *Gibbus*.

Sphécodes gibbus. Latreille.

Nomada gibba. Fabricius.

Melitta gibba. Kirby.

Dichroa analis. Illiger.

Inhabits Europe.

Subdivision 2.

Lip with the intermediate division incurved, longer than the lateral ones, and twice as long or more than the head.

GENUS DCXLVI. HYLÆUS. Fabr. Illig. Spin. Klug.

APIS. Linnæus, Villers, Rossi.

ANDRENA. Olivier, Panzer, Jurine, Spinola.

HYLÆUS. Fabricius, Illiger, Klug.

MELITTA. ** b. Kirby.

HALICTUS. Latreille.

Lip lanceolate, little sericeous. Hinder feet in both sexes alike. Anus of the females with a longitudinal groove above.

The males of this genus are remarkable for an elongate cylindric body. The wings of many of the species are beautifully iridescent. They nidificate in bare banks.

Sp. 1. *Sexcinctus*.

Hylæus sexcinctus. Fabricius.

Halictus sexcinctus. Latreille.

Inhabits Europe.

GENUS DCXLVII. NOMIA. Latreille.

MEGILLA. Fabricius.

LASIUS. Jurine, Panzer.

Lip very hairy, or tomentose. Hinder feet of the male with dilated incrassated tibiae and thighs.

Sp. 1. *Diversipes*.

Nomia diversipes. Latreille.

Megilla curvipes? Fabricius.

Sp. 2. *Difformis*.

Lasius difformis. Jurine, Panzer.

Inhabits Germany.

TRIBE XIII. APIDES.

Lip with the apex inflected, the intermediate lacinia filiform, and very long. Labial palpi, with the two first joints resembling a compressed seta.

FAMILY I. *Panurgida*.

(Solitary bees.)

Hinder tarsi with the first joint nearly equally broad, or gradually narrowing from the base to the apex, the second joint originating from the middle of its apex.

DIVISION I.

Palpi alike.

GENUS DCXLVIII. *SYSTROPHA*. Illiger, Klug.

APIS. Schæffer, Rossi.

EUCERA. Scopoli.

ANDRENA. Olivier.

HYLÆUS. Fabricius.

CERATINA. Jurine.

ANTHIDIUM. Panzer.

Mandibles bidentate. Superior wings with three complete submarginal cells. Ocelli disposed in transverse straight lines. Antennæ filiform, elongate; the apex convoluted in the males, the females elongate-clavate, the apex acuminate.

Sp. 1. *Spiralis*.

Systropha spiralis. Illiger.

Andrena spiralis. Olivier.

Hyleus spiralis. Fabricius.

Anthidium spirale. Panzer.

Inhabits Europe.

GENUS DCXLIX. *PANURGUS*. Panzer, Spinola, Latr.

APIS. Scopoli.

DASYPODA. Illiger, Fabricius.

APIS. Kirby. *a.

ERIOPS. Klug.

Mandibles not dentated. Antennæ straight in both sexes, and subclavate. Superior wings with two submarginal cells. Ocelli disposed in a triangle.

Sp. 1. *Lobatus*.

Panurgus lobatus. Panzer.

Dasyhoda lobata. Fabr.

Inhabits Europe.

DIVISION II.

Palpi unequal; the labial palpi setiform.

Subdivision 1.

Labrum nearly quadrate, transverse, or not much longer than broad. Mandibles tridentate at their points. (Superior wings with three submarginal cells).

GENUS DCL. *XYLOCOPEA*. Latr. Illiger, Panzer, Jur. Klug, Spinola, Fabr.

APIS. Linn. Geoff. Vill. Rossi, Kirby. (**d. 2. β).

BOMBUS. Fabr.

CENTRIS. Fabr.

Labrum transverse, abruptly carinated transversely, the anterior margin ciliated, emarginated. Antennæ filiform, with the scapus very long.

The wings of this genus are generally violet coloured, and composed of a substance between membrane and corium.

Sp. 1. *Violacea*.

Xylocopa violacea. Fabr. Panzer, and Latr.

Apis violacea. Linn.

Inhabits Europe.

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The following account of the economy of this species is extracted from Reaumur. "The mother bee usually makes her appearance in the spring, as soon as the winter is over; she may then be met with in gardens, visiting such walls as are covered with trees trained on trellis-work, in a sunny aspect. When once she has begun to make her appearance, she frequently returns, and for a long period may be known by her size, and her humming noise, which much resembles that of the genus *Bombus*. The object of these early visits is to fix upon a piece of wood calculated for her purposes. She generally selects the putrescent supporters of arbours, or vine-props, and will sometimes attack garden-seats, thick doors, and window-shutters; but she generally (if not always) selects a piece cylindrical and perpendicular. With her strong mandibles she bores into it, directing her course obliquely downwards, then proceeding in a direction parallel with its sides, till she has bored a cylindrical hole from twelve to fifteen inches in length, and seven or eight lines in diameter. Sometimes three or four tunnels are bored in the same piece, nearly parallel with each other. A passage is left where she enters, or first begins to bore, and another at the end of the pipe. As the industrious animal proceeds in her employment, she clears away the wood which she detaches, throwing it out upon the ground, where it appears like a small heap of saw-dust. Thus we see she has prepared a long cylinder in the midst of the wood, sheltered from the weather and from external injuries, and fitted for her purposes. She now enters to the bottom of the cylinder, and deposits an egg, and then lays in a store of pollen mixed with honey, sufficient for the nutriment of the larva when hatched. At the height of seven or eight lines, which is the depth of each cell, she next constructs, of particles of the saw-dust (formed in the boring of her tunnel) glued together, and also to the sides of the cylinder, an annular stage. When this is sufficiently hardened, its anterior edge affords a support for a second ring of the same materials; and thus the ceiling is gradually formed of these concentric circles, until a small orifice in the centre only remains; and this is also filled up with a circular mass of the agglutinated saw-dust. This partition exhibits the appearance of as many concentric circles as the animal has joinings; and is about the thickness of a French crown-piece. It serves for the ceiling of the lower, and floor of the upper apartment. One cell being completed, she proceeds to another, which she furnishes in the same manner; and so on, till she has divided her whole tunnel into apartments, which are usually about twelve. When the larva assumes the pupa, it is placed in its cell, with its head downwards, and is thus prevented, when it has attained its perfect state, and is eager to emerge into day, from disturbing the tenants of the upper cells, who, being of later date each than its superincumbent neighbour, are not quite so perfected as to be ready to go forth upon the world."

GENUS DCLI. *CERATINA*. Latr. Jurine, Spinola.

APIS. Villers, Rossi, Kirby. (**d. 2. α).

MEGILLA. Fabr. Illiger.

PROSOPIS. Fabr.

PITHITIS. Klug.

CLAVICERA. Walckenaer.

Labrum almost quadrate, perpendicular, entire. Antennæ gradually thickening towards their extremities; the scapus not large.

Sp. 1. *Cerulea*.

Apis cerulea. Villers.

Apis cyænea. Kirby.
Inhabits Europe.

Subdivision 2.

Labrum longer than broad, inclined perpendicularly; porrect beneath the mandibles, elongate, quadrate. Mandibles strong; porrected, with the apex bidentate, in some; trigonate, and often multidentate, in others.

* Labial palpi with the three first joints continuous, the fourth inserted under the external apex of the third.

GENUS DCLII. *ROPHITES*. Spinola, Latr.
Mandibles triangular. Maxillary palpi six-jointed.

Sp. 1. Quinquespinos.

Rophites quinquespinos. Spinola, Latr.

GENUS DCLIII. *CHELOSTOMA*. Latr.

APIS. Linn. Villers, Kirby. (** c. 2. γ).

HYLÆUS. Fabr.

ANTHOPHORA. Illiger, Fabr.

ANTHIDIUM. Panzer.

TRACHUSA. Jurine.

Mandibles (of the females) arcuated, their apex bidentate or furcate, porrect, internally hairy. Maxillary palpi three-jointed.

The bodies of the insects composing this genus are very long, slender, and cylindric. The belly of the male, near the anus, is concave, and covered with down; and at its base is a horn or protuberance. When asleep, they roll themselves up like an armadillo, the horn or protuberance fitting into the anal cavity. They nidificate in posts and rails. The males usually repose in the centre of a flower.

Sp. 1. Florisomnis.

Hylæus florisomnis. Fabr. Panzer.

Apis florisomnis. Linn.

Chelostoma florisomnis. Latr.

Inhabits Europe. The female is *Apis maxillosa* of Linné and Kirby; *Hylæus maxillosus* of Fabricius.

** Labial palpi with the third joint inserted obliquely on the external side of the second, near to the apex.

GENUS DCLIV. *HERIADES*. Spinola, Latr.

APIS. Linn. Kirby. (** c. 2. γ).

ANTHOPHORA. Fabr. Illiger, Klug.

ANTHIDIUM. Panzer.

TRACHUSA. Jurine.

Labial palpi with the second joint longer than the first. Body very long, cylindric.

This genus, in habit and in economy, resembles *Chelostoma*; the males are often taken asleep in flowers; their abdomen is then doubled, so that the tubercle with which its base is armed fits into the cavity near the anus.

Sp. 1. Truncorum.

Hierades truncorum. Spinola, Latr.

Anthophora truncorum. Fabr. Illiger.

Inhabits Europe.

GENUS DCLV. *STELTS*. Panzer.

APIS. Kirby. (** c. 1. β).

ANTHOPHORA. Illiger.

MEGACHILE. Latr. Walck.

TRACHUSA. Jurine.

GYRODROMA. Klug.

Labial palpi with the second joint not longer than the first. Maxillary palpi two-jointed; the first joint longest. Mandibles strong. Abdomen convex above, smooth below, and scarcely hirsute.

Sp. 1. Aterrima.

Stelts aterrima. Panzer, Latreille.

Inhabits Europe.

GENUS DCLVI. *ANTHIDIUM.* Fabr. Panzer, Klug, Latreille.

APIS. Linn. Geoff. Schæffer, Kirby. (** c. 2. β.)

ANTHOPHORA. Illiger.

MEGACHILE. Walckenaer, Spinola.

TRACHUSA. Jurine.

Labial palpi with their second joint not longer than the first. Maxillary palpi one-jointed. Abdomen of the females, below, very hairy; above, convex, incurved; the base broadly truncate. Mandibles broad, multidentate.

The anus of the males of this genus is always armed with spines.

Sp. 1. Manicatum.

Anthidium manicatum. Panzer, Latreille.

Apis manicata. Kirby, Linn.

Inhabits Europe.

The following interesting account of the economy of *Anthidium manicatum*, is extracted from Kirby's *Monographia*. "Linnaeus," says he, "observes, upon this bee, in *arboribus cavis nidos construit*; but he takes no notice of the materials of which the nidi were made. This deficiency has been supplied by Mr James Trimmer and Sir Thomas Cullum. The former of these gentlemen some time since informed me, that having had frequent opportunities of watching the motions of *Anthidium manicatum*, and finding that the female constantly attended *stachys germanica*, *agrostemma coronaria*, and other woolly leaved plants which grew in his garden, he was curious to know the reason of this preference. It was not long before his curiosity was gratified; and he discovered that it was the wool which covers the surface of the leaves of these plants, that was their attraction; for he observed the little animal, with her strong "mandibulæ," scraping it off with great industry and perseverance; and while these were thus employed, rolling it up, with her fore legs, into a little ball; making all the time, a considerable hum. The use to which she applied the material thus collected, Mr Trimmer could never discover; we only conjectured that she employed it in the construction of her nest. Our conjecture is almost turned into certainty by the following account given by my ingenious friend Sir Thomas Cullum, to Mr Marsham, of a nest which he found made of similar materials. He thus expresses himself, in a letter to that gentleman. "I observed, in a lock of one of my garden gates, that the key did not turn easily round; and upon looking into the key-hole, I saw something white. I had the lock taken off, and it was completely full of a downy substance, containing the pupa of some bee, I conclude. Upon examining the downy substance, I am certain it is the fine pappus or down from the *Anemone sylvestris*, of which I had two plants in my garden. I have preserved the whole as I found it; but the bee has not yet made its appearance in its perfect state. I shall watch their progress, and send them to you or to Mr Kirby." This letter is dated October 10, 1800. Sir Thomas has since had the goodness to send me the nidos; the pupæ are still quiescent, (April 2, 1801), and will probably be not disclosed till after Midsummer. Upon comparing it with the anecdote which I have just related of this bee, I cannot help being of opinion, that it is the nidos of that species. It is with some hesitation that I venture to differ from so accurate an observer as Sir Thomas Cullum; but it appears to me that the wool which envelopes the nest and the cells, is scraped from the leaves of one of the first mentioned plants. I gathered some leaves of *Agros-*

temma coronaria, and with my penknife shaved off some of its down; and upon comparing it with that used in the nest, under a magnifier, I found that they were exactly the same. This, in conjunction with Mr Trimmer's account, persuades me that the material employed in this instance is not the pappus of *Anemone sylvestris*, which is of a more silky texture. There were several cells or cases included in the lock unconnected with each other, except by the wool, which was their common covering. These cases were of an oval form, and consisted of an exterior coat of wool; under this was a membranaceous cell of a pale colour, which was covered with a number of vermiform masses of a brown substance, seemingly made of pollen and honey, in shape and size much resembling *Sphaeria canaliculata*, and like that fungus distinguished by a longitudinal furrow slightly impressed. These were laid, without any regular order, over the cell, and by means of them the wool, which formed its exterior coat, was made to adhere. It is remarkable that this bee should employ these materials to cover its cells, which others use only as food for their larvæ. At the summit of this membranaceous case is a small chimney, with an orifice; and within it contains another cell, which is rather coriaceous, strong, and of a brown colour, in the inside shining very much, as if covered with tinfoil. This may be the folliculus or cocoon made by the larva, previous to its assuming the pupa. I opened one of these in the autumn, and another in the spring. In both the animal was still in its larva state, but had no food remaining in its cell. In that opened in the spring, it appeared to be dead. I imagine, when Sir Thomas Cullum first took them, that they were just ready for their first change; but that the alteration produced by removing the nest from the situation the parent insect had chosen for it, was fatal to some, if not all of its inhabitants. Amongst the wool were masses of sweet pollen paste." He afterwards adds an extract from the Rev. Gilbert White's *Naturalist's Calendar*, (p. 109.) "There is a sort of wild bee frequenting the garden campion for the sake of its tomentum, which probably it turns to some purpose in the business of nidification. It is very pleasant to see with what address it strips off the pubes, running from the top to the bottom of a branch, and shaving it bare with all the dexterity of a hoop-shaver. When it has got a bundle almost as large as itself, it flies away, holding it secure between its chin, and its fore legs."

GENUS DCLVII. *OSMIA*. Panzer, Spinola, Latr.

APIS. Linn. Villers, Kirby. (** c. 2. δ.)

ANTHOPIORA. Fabricius, Illiger, Klug.

MEGACHILE. Walckenaer.

TRACHUSA. Jurine.

HOPLITIS. Klug.

AMBLYS. Klug.

Labial palpi with the second joint not longer than the first. Maxillary palpi four-jointed. Abdomen convex above, hairy beneath in the females. Mandibles broad.

Sp. 1. *Cornuta*.

Osmia cornuta. Latreille.

Osmia bicornis. Panzer?

Apis bicornis. Kirby?

Inhabits Europe.

This species selects the hollows of large stones for the purpose of nidification.

Sp. 2. *Carulescens*.

Apis carulescens. Kirby, Linn.

Apis anea. Linn.

Inhabits Europe, constructing its nest of argillaceous

earth mixed with chalk, upon stone walls. Mr Kirby supposes that it nidificates also in chalk pits.

GENUS DCLVIII. *MEGACHILE*. Latr. Walck. Spin.

APIS. Linn. Villers, Kirby. (** c. 2. a.)

ANTHOPIORA. Fabr. Illiger, Panzer, Klug.

TRACHUSA. Jurine.

XYLOCOPA. Fabricius.

CENTRIS. Fabricius.

Labial palpi with the second joint not longer than the first. Maxillary palpi two-jointed, the first rather longest. Mandibles very strong. Abdomen triangular, flat above, very downy beneath in the females.

The insects of this genus are well known by the name of *Leaf-cutters*, *Carpenter-bees*, and *Coupeuses de feuilles*; their interesting economy having attracted the attention of many naturalists. So early as 1670, it was noticed by Ray, Dr Lister, Willoughby, and Sir Edward King. Linnæus in this, as in many other instances, (supposing the economy of a genus to be peculiar to one species only,) has confounded several species under the general title of *Apis centuncularis*, and denoted it by the orange-coloured hairs which cover the under side of the abdomen, a character which it possesses along with a great number of species.

Some of the species nidificate in trees, and others beneath the ground. The following history of the economy of the genus, (and which will apply to all with which we are acquainted,) is given by Reaumur. "The nests they construct are cylindrical, sometimes six inches in length, and composed entirely of the leaves of trees. They usually consist of several cells, each of which is shaped like a thimble, the convex end of the second fitting closely into the open end of the first; the third into the second, and so on with respect to the rest. Although these cells are honey-tight, which is often found within them in a liquid state, yet the portions of the leaves are not glued together, but merely most accurately adjusted to each other. In forming the cell, the pieces of leaf are made to lap over one another, so that the natural margin of the leaf is kept on the outside, and that which has been cut within; thus a tube is first formed, and in this way coated with three or four layers, the exterior covering being made of larger pieces than the interior. In coating, the provident insect is very careful to lay the middle of each leaf over the margins of those that form the first tube; thus the sutures are covered and strengthened. At the closed end, or narrow extremity of the cell, the leaves have a bend given to them, so as to form a convex termination; when a cell is formed in this manner, her next care is to fill it with pollen and honey. When it is nearly filled, she deposits an egg, and closes it with three pieces of leaf;" (sometimes with more,) "which are so exactly circular, that a pair of compasses could not define their margin more truly; and these coincide most accurately with the sides of the cell, and are retained in their situation by no gluten, but by the accuracy of their adaptation alone. After this covering is fitted in, there remains still a concavity which receives the convex end of the succeeding cell. In this manner, the patient and indefatigable little animal proceeds, till she has completed her cylinder of six or seven cells. This cylinder is coated externally by other pieces of leaf of larger dimensions than those used in making the cells, and of a different form, for they are nearly oval; those at the ends are bent inwards, to cover each extremity. These nests are usually made in fistular passages, which these indefatigable creatures bore under ground in a horizontal direction;

their diameter is exactly that of the cylinder, to which, indeed, they give its form, and their bend to the pieces which compose it. If by any accident their labour is interrupted, or their edifice deranged, it is astonishing with what persevering patience they set themselves to put all things again in order. Their mode of cutting the leaf, too, requires particular notice. Nothing can be more expeditious; they are not longer about it than we should be with scissors. When the insect has selected a bush furnishing the leaves required, she keeps hovering over and flying round it, until she has discovered the leaf best adapted for her purpose. When she has chosen the leaf, she alights on it, sometimes on the upper surface, sometimes underneath it, or at other times on its edge, so that the margin passes between her legs. As soon as she has made a beginning, (which she usually does near the main nerve,) she continues cutting with her mandibles, until the work be completed. As she proceeds, she keeps the margin of the detached part between her legs, those on one side being above, and the other below it, so that the section keeps yielding to her, and does not interrupt her progress. She makes her incision in a curve line, approaching the rachis at first; but when she has reached a certain point, she keeps receding from it towards the margin, still cutting in a curve. When she has nearly detached the portion she has been employed upon from the leaf, she balances herself, lest its weight should carry her to the ground; and the moment of its parting from the parent stock, she flies off, the detached portion remaining bent between her legs, and being perpendicular to her body. She pursues the same mode, whatever the form or size of the piece necessary for her purpose. The larvæ when arrived at full size, spin a cocoon thick and solid of silk, which they attach to the sides of the cell."

Mr Kirby very justly supposes Reaumur to be mistaken with respect to the mode of forming their cylindric nests. He considers that the nest takes its form, and the leaves composing it their bend, from the passage, and that the external coat must be first deposited, as the insect could not get between the side of the cylinder and of the nest.

Sp. 1. Centuncularis.

Apis centuncularis. Linnæus, Fourcroy, Kirby.

Megachile centuncularis. Latreille.

Inhabits Europe. Builds its cells with the leaves of roses, and of the *Mercurialis annua*.

GENUS DCLIX. *CELIOXYS.* Latreille.

APIS. Linn. Villers, Kirby. (** c. 1. a.)

ANTHOPHORA. Fabricius, Illiger, Klug.

MEGACHILE. Walckenaer.

TRACHUSA. Jurine.

ANTHIDIUM. Panzer.

HERIABES. Spinola.

Labial palpi with their second joint not longer than the first. Maxillary palpi two-jointed, the first double the length of the second. Mandibles narrow and strong in both sexes. Scutellum spiny. Abdomen conic or triangular, very little or not at all downy. Anus of the males spiny.

Sp. 1. Conica.

Apis conica. Kirby.

Celioxys conica. Latreille.

Male.

Apis quadridentata. Linn.

Anthophora quadridentata. Fabr.

Female.

Apis conica. Linn.

Inhabits Europe.

Subdivision 3.

Labrum remarkably longer than broad, inclining perpendicularly to the mandibles, triangulate, truncate. Mandibles narrow, pointed, unidentate on their internal edge. Body simply pubescent. Superior wings with two submarginal cells complete.

GENUS DCLX. *AMMOBATES.* Latreille.

Maxillary palpi six-jointed. Superior wings with two submarginal cells.

Sp. 1. Rufiventris.

Ammobates rufiventris. Latreille.

Inhabits Portugal.

GENUS DCLXI. *PHILEREMUS.* Latreille.

EPEOLUS. Fabricius.

Maxillary palpi two-jointed. Superior wings with two submarginal cells.

Sp. 1. Punctatus.

Epeolus punctatus. Fabricius.

Phileremus Kirbyanus. Latreille.

Obs. Latreille has a division of this genus, in which the superior wings have but one submarginal cell, which character is certainly sufficient to constitute a distinct genus.

Subdivision 4.

Labrum a little broader than long, subsemicircular or semioval. Mandibles slender, pointed, unidentate on their internal edge. Abdomen not pollenigerous.

* Lip with the lateral divisions shorter than the palpi.

Body simply pubescent.

GENUS DCLXII. *NOMADA.* Scop. Fabr. Illiger, Klug, Spinola, Jurine, Panzer.

APIS. Linn. Villers, Kirby, (* d.)

Superior wings with three submarginal cells complete. Maxillary palpi six-jointed.

The history, economy, and mode of nidification of the insects of this genus (all of whom are remarkable for the gaiety of their colours) as yet remain a secret. Dr Leach has strong reasons for suspecting them to be parasitical, and this seems the more probable from their having no instruments for carrying pollen. Their flight is silent, unattended by any hum; they frequent dry banks. Their eyes, whilst living, exhibit through the external reticulated covering, a surface of hexagons, which keeps shifting with the light.

Sp. 1. Ruficornis.

Apis ruficornis. Linn. Kirby.

Nomada ruficornis. Fabr. Latr.

Inhabits Europe.

GENUS DCLXIII. *EPEOLUS.* Latreille, Fabricius, Illiger, Jurine, Panzer, Spinola, Klug.

APIS. Linn. Kirby, (* d.)

Superior wings with three complete submarginal cells. Maxillary palpi one-jointed.

Sp. 1. Variegatus.

Epeolus variegatus. Fabricius, Panzer, Latreille.

Apis variegata. Linné.

Inhabits Europe, but is very local, (if not rare,) in Britain.

GENUS DCLXIV. *PASITES.* Jurine, Spinola.

BIASTES. Panzer.

NOMADA. Fabricius.

ANTHOPHORA. Illiger.

Superior wings with two complete submarginal cells.

Maxillary palpi four-jointed.

Sp. 1. Schottii.

Blastes schottii. Panzer.

Nomada schottii. Fabricius.

Psithyrus schottii. Latreille.

Inhabits Europe.

** Lateral divisions of the lip almost as long as the palpi. Body very villose in parts. Scutellum spinose. Superior wings with three submarginal cells.

GENUS DCLXV. *Oxæa*. Klug. Latreille.

Maxillary palpi one-jointed, very short.

Sp. 1. Flavescens.

Oxæa flavescens. Klug. Latreille.

GENUS DCLXVI. *Crocisa*. Jurine, Latreille.

Thyreus. Panzer.

Melecta. Fabricius, Illiger, Klug.

Nomada. Rossi.

Maxillary palpi three-jointed.

Sp. 1. Histrio.

Melecta histrio. Fabricius.

Melecta histronica. Illiger.

Crocisa histrio. Latreille.

Inhabits Europe.

GENUS DCLXVII. *Melecta*. Latreille, Panzer, Fabricius, Illiger, Spinola.

Apis. Linn. Kirby, (** a.)

Crocisa. Jurine.

Symmorphia. Klug.

Maxillary palpi six-jointed, with five very distinct.

The insects of this genus are supposed to be parasitical.

Sp. 1. Punctata.

Melecta punctata. Latreille.

Crocisa atra. Jurine.

Apis punctata. Kirby.

Inhabits Europe. Is common near Swansea in South Wales.

FAMILY II. *Apida*.

Lip with the apex generally hirsute, not inflected.

DIVISION I.

Hinder feet of the females, with their tibiae externally, and the first joint of the tarsi very hairy.

Subdivision 1.

Maxillary palpi with more than four joints. Lip with its lateral divisions as long or longer than the labial palpi. Antennae of the males very long.

GENUS DCLXVIII. *Eucera*. Scopoli, Fabricius, Latreille, Panzer, Spinola, Klug.

Apis. Linn. Kirby, (** d. 1.)

Maxillary palpi distinctly six-jointed. Superior wings with two submarginal cells, complete.

Sp. 1. Longicornis.

Eucera longicornis. Fabricius, Panzer, Latreille.

Apis longicornis. Kirby, Linn.

Inhabits Europe.

GENUS DCLXIX. *Macrocera*. Latreille.

Eucera. Panzer.

Maxillary palpi distinctly five-jointed, the sixth joint very obsolete, or wanting. Superior wings with three submarginal cells complete.

Sp. 1. Antenuata.

Eucera antenuata. Panzer.

Macrocera antenuata. Latr.

Inhabits Europe.

Subdivision 2.

Maxillary palpi with four joints or more. Lip with the lateral divisions shorter than the palpi. Superior wings with three submarginal cells complete.

* Labial and Maxillary palpi alike.

GENUS DCLXX. *Melitturga*. Latreille.

Maxillary palpi six-jointed. Labial palpi filiform.

Sp. 1. Clavicornis.

Melitturga clavicornis. Latreille.

Inhabits France.

** Labial palpi setiform.

GENUS DCLXXI. *Anthophora*. Latr. Spinola.

Lasius. Jurine.

Apis. Linn. Geoff. Kirby, (** d. 2. a.)

Podalirius. Walckenaer.

Centris. Fabricius, Panzer.

Megilla. Illiger, Klug. Fabricius.

Mandibles unidentate within. Maxillary palpi six-jointed.

Sp. 1. Retusa.

Apis retusa. Linn. Kirby.

Lasis pilipes. Jurine.

Megilla pilipes. Fabricius.

Anthophora hirsuta. Latreille.

Inhabits Europe.

GENUS DCLXXII. *Saropoda*. Latreille.

Megilla. Illiger, Panzer.

Heliophila. Klug.

Apis. Kirby.

Mandibles unidentate within. Maxillary palpi five-jointed.

Sp. 1. Rotundata.

Megilla rotundata. Panzer.

Saropoda rotundata. Latreille.

Inhabits Europe.

GENUS DCLXXIII. *Centris*. Fabricius.

Apis. Linn.

Megilla. Illiger.

Lasius. Jurine.

Trachusa. Klug.

Hemisia. Klug.

Mandibles quadridentate. Maxillary palpi four-jointed.

Sp. 1. Hemorrhoidalis.

Centris hemorrhoidalis. Fabr. Latr.

Inhabits Europe.

Subdivision 3.

Maxillary palpi one-jointed.

GENUS DCLXXIV. *Epicharis*. Klug. Illig. Latr.

Apis. Olivier.

Centris. Fabricius.

Xylocopa. Fabricius.

Bombus. Illiger.

Acanthopus. Klug.

Superior wings with three submarginal cells.

Sp. 1. Dasyphus.

Epicharis dasyphus. Klug. Illiger, Latreille.

DIVISION II.

Hinder feet with the tibiae and first joint of the tarsi shortly hairy.

(Social bees.)

Subdivision 1.

Hinder tibiae terminated by two spurs or heels. Superior wings with three submarginal cells in all, complete, the last neither linear nor oblique.

GENUS DCLXXV. *Euglossa*. Latreille, Fabricius, Illiger, Klug.

Centris. Fabricius.

Bremus. Jurine.

Apis. Linn.

Labrum almost perfectly quadrate. Promusci as long as the body. Ocelli disposed in a triangle.

Sp. 1. Dentata.

Englossa dentata. Fabr. Latr.

Sp. 2. Dimidiata.

Centris dimidiata. Fabr.

Englossa dimidiata. Latr.

GENUS DCLXXVII. *BOMBUS.* Latreille, Fabricius, Illiger, Panzer, Spinola, Klug.

APIS. Linn. Kirby; (** c. 2.)

BREMUS. Jurine.

Labrum transverse. Promusci shorter than the body. Ocelli disposed in a transverse, straight line.

The *Bombi* usually nidificate in cavities beneath the ground, but many of the species, (especially those of a fulvescent colour,) construct their nest of moss, on the surface. The females appear early in the spring, when the salices or willows are in bloom. The males are most abundant in the autumn.

Sp. 1. Terrestris.

Bombus terrestris. Fabr. Latr.

Apis Terrestris. Linn.

Inhabits Europe.

Sp. 2. Muscorum.

Bombus Muscorum. Fabr.

Inhabits Europe.

Subdivision 2.

Hinder tibiæ without spurs or heels. Superior wings with two or three complete submarginal cells, the last oblique or linear.

GENUS DCLXXVIII. *APIS* of authors.

Hinder tarsi with their first joint long. Superior wings with three submarginal cells complete, the last oblique and linear.

Sp. 1. Melifica. (Hive bee.)

Apis melifica of authors.

The interesting economy of the hive bee has engaged the attention of Swammerdam, Reaumur, Huber, Wildman, &c. to whose works we must refer the reader, as the history of this curious animal would suffice to fill a bulky volume.

GENUS DCLXXIX. *MELIPONA.* Illiger, Klugellan, Latreille.

APIS. Fabr.

TRIGONA. Jurine.

Hinder tarsi with their first joint obtrigonal. Superior wings with two complete submarginal cells. Mandibles without any remarkable process.

Sp. 1. Favosa.

Apis favosa. Fabr.

Melipona favosa. Latr.

GENUS DCLXXX. *TRIGONA.* Jurine, Latreille.

MELIPONA. Illiger, Klug.

APIS. Fabricius.

CENTRIS. Fabr.

Sp. 1. Amalthea.

Apis amalthea. Fabr.

Trigona amalthea. Latr.

Sp. 2. Spinifhes.

Centris spinifhes. Fabr.

Trigona spinifhes. Latr.

ORDER DIPTERA.

ORDER DIPTERA. Linn. Latr. &c.

CLASS ANTLIATA. Fabr.

The insects composing this order are distinguished from all other insects by the following characters:

Wings two, naked, unprotected. Halteres, (poisers or balancers, placed behind, and generally beneath the wings.

Besides these characters, may be noted some others which are common to almost all dipterous insects. The mouth is for the most part furnished with a rostrum having no articulations. Thorax composed of but one segment, always distinct from the abdomen.

The *Diptera* are at this time undergoing investigation by some very eminent entomologists, and as the Editor is desirous of rendering every part of this work as complete as the nature of the publication will admit, he has resolved to defer giving the arrangements of this order, until the article *INSECTA* goes to press, when the most approved system of *Diptera* will be given; in the mean time, we shall merely give a tabular view of the arrangement of Latreille, the terminations only being altered, and the term *tribe* being used for *family*.

SECTION I. PROBOSCIDEA.

Head distinct from the thorax by an evident interval. Proboscis (rarely wanting) univalve. Tarsi with two simple nails.

DIVISION I.

Antennæ with many joints.

TRIBE I. TIPULARIDES.

DIVISION II.

Antennæ with not more than three joints.

Subdivision 1.

Antennæ with the last joint having at least four rings or annulations.

TRIBE II. STRATIOMYDES.

Haustellum with two setæ.

TRIBE III. TABANIDES.

Haustellum with many setæ.

Subdivision 2.

Antennæ with the last joint having not more than three rings.

A. Haustellum with four setæ at least.

a. Proboscis (when at rest) entirely or partially prominent.

* Proboscis terminated by two large lips.

TRIBE IV. RHAGIONIDES.

Palpi prominent, cylindric-conic. Wings divaricating. Antennæ generally moniliform.

TRIBE V. DOLYCHOPODES.

Palpi prominent, lamelliform. Wings incumbent. Antennæ patelliform.

TRIBE VI. MYDASIDES.

Palpi not prominent.

** Proboscis terminated by very small lips.

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coleopteratus 364 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
K 364 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Kentish glory 443 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Knout-grass, com- 454 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
mon 454 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
L 364 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Labia, Leach 344 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
minor 18 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Labidura, Leach 345 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
signata 18 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Labius 347 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Latreille 18 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		
Zacophilus, Leach 49 1	Larida, p. 739 1	482 1	462 1	Kirby 644 1	280 1		

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	Gen. Sp.	Gen. Sp.	Gen. Sp.	Gen. Sp.	Gen. Sp.	Gen. Sp.	Gen. Sp.	Gen. Sp.	
Illiger	130	Rhynchophorus, Fabr.	203	Oliver	265	manicata	378 1	Geoffroy	160
levis	ib. 1			Oliver	268	Sisyphus	147 1	Linnaeus	103
picicornis	119 1	Rhynota, Fabr. 713.		Panzer	268	Sitarius	ib. 1	Linnaeus	104
Pidius	131	Rhynchophorus	275	creatus	268 1	Spiciferi	2 7	Linnaeus	105
Fabricius	115	histeroides	ib. 0	cyllindricus	267 1	apicalis	ib. 1	Linnaeus	106
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Marshall	119			clivus	49 1	Tiliæ	ib. 2	Tenebrionides, ib.	601
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clavatus	117 2	cutellator	ib. 1	pygmaeus	408	fuscus	ib. 1	Tenthrionides, 729.	
geminus	113 2	Sagra	594	Scorpius	498	viridis	ib. 2	Tenthrionides, ib.	612
pericniscus	119 1	lenorata	ib. 1	Scorpius	498	Spalagmus	548	Fabricius	513
securus	118 1	Sagrida, p. 702.	384	a. corpi allonge	391 1	nigra	ib. 1	Linnaeus	511
testator	121 1	Solda, Fabricius	594	Scorpius	498	rufus	ib. 1	Linnaeus	511
testator, Mar. 171	1	Salpingides, p. 695.	64	a. corpi allonge	391 1	ulvi	ib. 1	Linnaeus	511
Plectrophagus	433	Salpingides, p. 695.	64	Scorpius	498	Stetis	558	Linnaeus	511
ruficornis	413	Salpingides, p. 695.	64	Scorpius	498	Stetis	558	Linnaeus	511
irritans	ib. 2	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
penetrans	ib. 2	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Punator, p. 100	390 1	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Purple edged copper	418 2	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
emperor	418 2	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
high light	418 2	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
hair streak	427 3	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Pyralis, p. 724	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Pyralis	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Hubner	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Hubner	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Hubner	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Latreille	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Latreille	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
dentata	ib. 1	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
palliolata	469 1	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
pungens	469 1	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
Pyralis, p. 724	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
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Pyralis, p. 724	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
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dentata	ib. 1	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
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Pyralis, p. 724	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus	511
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Pyralis, p. 724	469	Sagaria	538	Scorpius	498	Stetis	558	Linnaeus</	

	Gen. Sp.		Gen. Sp.		Gen. Sp.		Gen. Sp.		Gen. Sp.		Gen. Sp.
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Tingis	380	fasciicornis	ib. 1	Trux	ib. 1	Linnaeus	619	pyllus	ib. 2	Nyphidria, p. 730.	
Tinodes, p. 725.	ib. 1	Trichus	269	Truxia	386	Linnaeus	624	spectrum	ib. 3		
Tiphia	438	faciatus	ib. 2	Trypoxylon	617	Linnaeus	639				
Fabricius	484	pallidus	ib. 1	Fabricius	604	Sulzer	604				
Fabricius	587	Trichodes, Herbst	93	atratum	609	abbreviata	619 1	W			
Roni	588	Trichoptera, p. 724.		Tussock, common	443 3	crabro	637 1	Wasp hornet			
femorata	589 1	Tridactylus	322	nut tree	ib. 10	oculata	639 1	aphix	434 3	Yponomeuta	448
maculata	587 1	paradoxus	ib. 1	source	ib. 4	phalerata	630 1	White spot brown		Yponomeuta	ib. 1
pedestris	582 1	Trigona	680	Typhalus	164	spinipes	631 1	butterfly	428 11	Zabrus	25
Tiphidae, p. 737.		spinipes	ib. 2	pumilus	ib. 1	unicornis	610 1	White spotted		cardius	ib. 1
Tipularidae, p. 730.		vulgaris	ib. 1			vulgaris	617 2	skipper		Zelus	174
Tornicus	265	Triplax	328			zonata	634 1	Wood argus but-	430 2	longipes	ib. 1
typographus	ib. 1	rusica	ib. 1					terfly	424 8	Zethus	633
Fortis	465	Tritiona	327	Y		Vespa, p. 742.		Wood leopard	439 1	ceruleopennis	ib. 1
Hubner	466	Geoffroy	279	Vanessa	423	Vespa, ib.		moth	434 3	Zethus	459
chlorana	465 2	Thunberg	280	Antiope	ib. 3	Ulciora	533	Wood white but-		Zethus	ib. 1
deotana	466 1	bipunctata	327 1	atalanta	ib. 1	Ulciora	288	terfly		Zethus	ib. 1
fagana	465 1	rusica, Latr.	ib. 1	Calbum	ib. 7	Ulciora	ib. 1			Zethus	ib. 1
pomana	465 3	Trochilum, Scopoli	434	cardui	ib. 3	Ulonata, Fab, p. 708.				Zethus	ib. 1
Toxicum	1 6	spiforme	ib. 1	lo	ib. 4	Volroxy	310	X		Zethus	ib. 1
richerianum	ib. 1	Trogoite	285	Folychloros	ib. 5	Rugellian	331 1	Xenops	342	Zethus	ib. 1
Trachelus	320	Fabricius	304	urtice	ib. 6	Upis	198	Feckii	ib. 1	Zethus	ib. 1
Trachusa	613	Sulzer	329	Velia	382	ceramoides	ib. 1	Rossi	ib. 2	Zethus	ib. 1
Trachys	57	bicolor	ib. 1	currens	ib. 2	Urania	429	Xorydes	ib. 1	Zethus	ib. 1
minuta	ib. 1	brunneus	286 1	rivulorum	ib. 1	Leilus	ib. 1	indicatorius	ib. 1	Zethus	ib. 1
Trachysectilis	204	caraboides	285 1	Vespa	637	Uranides, p. 710.		Xyletinus	120	Zethus	ib. 1
aphidoides	ib. 1	mauritanica	ib. 1	Geoffroy	569	Urocerus	823	levis	ib. 1	Zethus	ib. 1
Trechus	24	purpurascens	286 1	Geoffroy	607	Latrelle	821	Xylocopa	650	Zethus	ib. 1
meridiana	ib. 1	Trogus	531	Linnaeus	843	gigas	823 1	violacea	ib. 1	Zethus	ib. 1
Typex	821					gigas, Linnaeus	ib. 2	Xyphidria	821	Zethus	ib. 1
								camelus	ib. 1	Zethus	ib. 1